**Link: http://www.finalccna.com/ccna-exploration-2-module-final-exama-version-4-0-routing-protocols-and-concepts.html**

**CCNA Exploration 2 – Module Final Exam[A] Version 4.0 Routing Protocols and Concepts**  
  
  
  
1. Refer to the exhibit. The network administrator is testing network connectivity by issuing the tracert command from host A to host B. Given the exhibited output on host A, what are two possible routing table issues on the network? (Choose two.)  
• Router1 is missing a route to the 172.16.0.0 network  
• Router1 is missing a route to the 192.168.1.0 network  
• Router2 is missing a route to the 10.0.0.0 network  
• **Router2 is missing a route to the 172.16.0.0 network**  
• **Router3 is missing a route to the 10.0.0.0 network**  
• Router3 is missing a route to the 192.168.0.0 network  
  
2. Which three statements describe the operation of routing with EIGRP? (Choose three.)  
• **As new neighbors are discovered, entries are placed in a neighbor table.**  
• If the feasible successor has a higher advertised cost than the current successor route, then it becomes the primary route.  
• **If hello packets are not received within the hold time, DUAL must recalculate the topology.**  
• **The reported distance is the distance to a destination as advertised by a neighbor.**  
• EIGRP maintains full knowledge of the network topology in the topology table and exchanges full routing information with neighboring routers in every update.  
• EIGRP builds one routing table that contains routes for all configured routed protocols.  
  
  
  
3. Refer to the exhibit. What are the effects of the exhibited commands on the router?  
• All passwords are encrypted.  
• Only Telnet sessions are encrypted.  
• **Only the enable password is encrypted.**  
• Only the enable password and Telnet session are encrypted.  
• Enable and console passwords are encrypted.  
  
4. What are three features of CDP? (Choose three.)  
• **tests Layer 2 connectivity**  
• provides a layer of security  
• operates a OSI layers 2 and 3  
• **enabled by default on each interface**  
• used for debugging Layer 4 connectivity issues  
• **provides information on directly connected devices that have CDP enabled**  
  
  
  
5. The network shown in the diagram is having problems routing traffic. It is suspected that the problem is with the addressing scheme. What is the problem with the addressing used in the topology?  
• The address assigned to the Ethernet0 interface of Router1 is a broadcast address for that subnetwork.  
• **The subnetwork configured on the serial link between Router1 and Router2 overlaps with the subnetwork assigned to Ethernet0 of Router3.**  
• The subnetwork assigned to the Serial0 interface of Router1 is on a different subnetwork from the address for Serial0 of Router2.  
• The subnetwork assigned to Ethernet0 of Router2 overlaps with the subnetwork assigned to Ethernet0 of Router3.  
  
  
  
6. Refer to the routing table shown in the exhibit. What is the meaning of the highlighted value 192?  
• It is the value assigned by the Dijkstra algorithm that designates the number of hops in the network.  
• It is the value used by the DUAL algorithm to determine the bandwidth for the link.  
• **It is the metric, which is cost.**  
• It is the administrative distance.  
  
7. Which two statements are true regarding link-state routing protocols? (Choose two.)  
• They do not work well in networks that require special heirarchical designs.  
• **They are aware of the complete network topology.**  
• They pass their entire routing tables to their directly connected neighbors only.  
• **They offer rapid convergence times in large networks.**  
• They rely on decreasing hop counts to determine the best path.  
• They do not include subnet masks in their routing updates.  
  
  
  
8. Refer to the exhibit. The network is running the RIP routing protocol. Network 10.0.0.0 goes down. Which statement is true regarding how the routers in this topology will respond to this event?  
• Router4 will learn about the failed route 30 seconds later in the next periodic update.  
• Split horizon will prevent Router4 from fowarding packets to the 10.0.0.0 network until the holddown timer expires.  
• Router5 immediately flushes the unreachable route from its routing table.  
• **Router5 will send Router4 a triggered update with a metric of 16 for network 10.0.0.0.**  
  
9. What are two tasks that must be completed before two routers can use OSPF to form a neighbor adjacency? (Choose two.)  
• The routers must elect a designated router.  
• **The routers must agree on the network type.**  
• **The routers must use the same dead interval.**  
• The routers must exchange link state requests.  
• The routers must exchange database description packets  
  
10. Which statement is true regarding routing metrics?  
• All routing protocols use the same metrics.  
• EIGRP uses bandwidth as its only metric.  
• **Routers compare metrics to determine the best route.**  
• The larger metric generally represents the better path.  
  
  
  
11. Refer to the exhibit. Pings are failing between HostA and HostB. The network administrator discovers that Router1 does not have a route to the 172.16.0.0 network. Assuming Router2 is configured correctly, which two static routes could be configured on Router1 to enable Host A to reach network 172.16.0.0? (Choose two.)  
• **ip route 172.16.0.0 255.255.0.0 S0/0**  
• ip route 172.16.0.0 255.255.0.0 S0/1  
• ip route 172.16.0.0 255.255.0.0 192.168.0.1  
• **ip route 172.16.0.0 255.255.0.0 192.168.0.2**  
• ip route 192.168.0.1 172.16.0.0 255.255.0.0 S0/0  
• ip route 192.168.0.1 172.16.0.0 255.255.0.0 S0/1  
  
12. What is the function of the OSPF LSU packet?  
• used to confirm receipt of certain types of OSPF packets  
• used to establish and maintain adjacency with other OSPF routers  
• used to request more information about any entry in the BDR  
• **used to announce new OSPF information and to reply to certain types of requests**  
  
  
  
13. Refer to the exhibit. The routers in the exhibit are running the EIGRP routing protocol. What statement is true regarding how packets will travel from the 172.16.1.0/16 network to the 192.168.200.0/24 network?  
• The router chooses the first path that it learned and installs only that route in the routing table.  
• The router chooses the path with the lowest administrative distance and installs only that route in the routing table.  
• The router chooses the highest routing ID based on the advertised network IP addresses and installs only that route in the routing table.  
• The router installs all the equal cost paths in the routing table but sends packets out only one, holding the others in reserve in case the primary route goes down.  
• **The router installs all the equal cost paths in the routing table and performs equal cost load balancing to send packets out multiple exit interfaces.**  
  
  
  
14. Refer to exhibit. A company network engineer enters the following commands in the routers:R1(config)# ip route 10.1.1.0 255.255.255.0 192.168.0.2R2(config)# ip route 10.1.2.0 255.255.255.0 192.168.0.1When the engineer enters the show ip route command on R1, the routing table does not display the static route to the 10.1.1.0 network. All R1 and R2 interfaces are correctly addressed per the graphic. What is a logical next step that the engineer could take in order to make the static route display in the routing table in R1?  
• Enter default routes in R1 and R2.  
• **Enable the R1 and R2 serial interfaces.**  
• Configure the static route to use an exit interface instead of a next-hop address.  
• Enter the copy run start command to force the router to recognize the configuration.  
  
15. What is the purpose of the TTL field within an IP packet header?  
• clears an unreachable route from the routing table after the invalid timer expires.  
• prevents regular update messages from inappropriately reinstating a route that may have gone bad.  
• removes an unreachable route from the routing table after the flush timer expires  
• **limits the period of time or number of hops a packet can traverse through the network before it should be discarded.**  
• used to mark the route as unreachable in a routing update that is sent to other routers  
  
  
  
16. Refer to the exhibit. Packets destined to which two networks will require the router to perform a recursive lookup? (Choose two.)  
• **10.0.0.0/8**  
• 64.100.0.0/16  
• 128.107.0.0/16  
• 172.16.40.0/24  
• 192.168.1.0/24  
• **192.168.2.0/24**  
  
  
  
17. Which of the following could describe the devices labeled “?” in the graphic? (Choose three.)  
• **DCE**  
• **CSU/DSU**  
• LAN switch  
• **Modem**  
• hub  
  
18. Refer to the exhibit. A packet enters Router1 with a destination IP of 172.16.28.121. Which routing table entry will be used to forward this packet to the destination address?  
• 172.16.0.0/16 [1/0] via 192.168.0.1  
• 172.16.0.0/20 [1/0] via 192.168.0.9  
• **172.16.16.0/20 [1/0] via 192.168.0.17**  
• 0.0.0.0/0 is directly connected, Serial0/0/1  
  
  
  
19. Refer to the exhibit. Which three statements are true of the routing table for Router1? (Choose three.)  
• **The route to network 172.16.0.0 has an AD of 156160.**  
• Network 192.168.0.16 can best be reached using FastEthernet0/0.  
• The AD of EIGRP routes has been manually changed to a value other than the default value.  
• **Router1 is running both the EIGRP and OSPF routing process.**  
• Network 172.17.0.0 can only be reached using a default route.  
• **No default route has been configured.**  
  
  
  
20. The Suffolk router is directly connected to the networks shown in the graphic and has a default route that points to the Richmond router. All interfaces are active and properly addressed. However, when the workstation on network 172.29.5.0/24 sends a packet to destination address 172.29.198.5, it is discarded by the Suffolk router. What can be a reason for this result?  
• The ip classless command is not enabled on the Richmond router.  
• The route was ignored if the Richmond router did not include the 172.29.198.0/24 network in its routing updates.  
• The Richmond router is in a different autonomous system than the Suffolk router.  
• The ip subnet-zero command was not configured on the Suffolk router.  
• **The ip classless command is not enabled on the Suffolk router.**  
  
  
  
21. Refer to the exhibit. Which statement is true concerning the routing configuration?  
• Using dynamic routing instead of static routing would have required fewer configuration steps.  
• The 10.1.1.0/24 and 10.1.2.0/24 routes have adjacent boudaries and should be summarized.  
• The static route will not work correctly.  
• **Packets routed to the R2 ethernet interface require two routing table lookups.**  
  
  
  
22. Refer to the exhibit. R1 knows two routes, Path A and Path B, to the Ethernet network attached to R3. R1 learned Path A to network 10.2.0.0/16 from a static route and Path B to network 10.2.0.0/16 from EIGRP. Which route will R1 install in its routing table?  
• Both routes are installed and load balancing occurs across both paths.  
• The route via Path B is installed because the EIGRP route has the best metric to network 10.2.0.0/16.  
• The route via Path A is installed because the static route has the best metric to network 10.2.0.0/16.  
• The route via Path B is installed because the EIGRP route has the lowest administrative distance to network 10.2.0.0/16.  
• **The route via Path A is installed because the static route has the lowest administrative distance to network 10.2.0.0/16.**  
  
  
  
23. When the show cdp neighbors command is issued from Router C, which devices will be displayed in the output?  
• D, SWH-2  
• A, B, D  
• SWH-1, SWH-2  
• **B, D**  
• SWH-1, A, B  
• A, B, D, SWH-1, SWH-2  
  
  
  
24. Refer to the exhibit. What will happen if interface Serial0/0/1 goes down on Router1?  
• The Dijkstra algorithm will calculate the feasible successor.  
• **DUAL will query neighbors for a route to network 192.168.1.0.**  
• Neighbor 172.16.3.2 will be promoted to the feasible successor.  
• Traffic destined to the 192.168.1.0 network will be dropped immediately due to lack of a feasible successor.  
  
25. What does RIP use to reduce convergence time in a larger network?  
• It reduces the update timer to 15 seconds if there are more then 10 routes.  
• **It uses triggered updates to announce network changes if they happen in between the periodic updates.**  
• It uses random pings to detect if a pathway is down and therefore is preemptive on finding networks that are down.  
• It uses multicast instead of broadcast to send routing updates.  
  
26. Refer to the exhibit. The ORL router is unable to form a neighbor relationship with the JAX router. What is a possible cause of this problem?  
• Router JAX has the wrong autonomous-system number.  
• **The command network 192.168.2.0 is missing from the EIGRP configuration on the JAX router.**  
• Automatic summarization is not disabled on the JAX router.  
• Router JAX has the wrong IP address on the Fa0/1 interface.  
  
  
  
27. What can be determined from the output shown in the exhibit? (Choose two.)  
• Annapolis is a 2611 router that is connected to the S0/0 interface of the Montgomery router.  
• All of the routers are connected to Montgomery through an Ethernet switch.  
• **Montgomery has Layer 2 connectivity with Cumberland.**  
• Layer 3 connectivity is operational for all of the devices listed in the Device ID column.  
• An administrator consoled into the Waldorf router can ping the Brant router.  
• **Brant, Fisherman, and Potomac are directly connected to Montgomery.**  
  
  
  
28. Refer to the exhibit. What summary address can Router2 advertise to Router1 to reach the three networks on Routers 3, 4, and 5 without advertising any public address space or overlapping the networks on Router1?  
• 172.16.0.0/8  
• 172.16.0.0/10  
• **172.16.0.0/13**  
• 172.16.0.0/20  
• 172.16.0.0/24  
  
29. Refer to the exhibit. A network administrator is trying to figure out why BOS does not have the 10.0.0.0/24 network in its routing table. All routers are configured for OSPF in area 0. The links between the routers are operational and the administrator is able to ping between all router interfaces. What is a logical next step that the network administrator should take to troubleshoot the problem?  
• Reboot the routers.  
• Change the OSPF process ID on all of the routers to 0.  
• Check to see if the cable is loose between BOS and JAX.  
• Check to see if CDP packets are passing between the routers.  
• **Use show and debug commands to determine if hellos are propagating.**  
  
  
  
30. Refer to the exhibit. A new PC was deployed in the Sales network. It was given the host address of 192.168.10.31 with a default gateway of 192.168.10.17. The PC is not communicating with the network properly. What is the cause?  
• The address is in the wrong subnet.  
• **192.168.10.31 is the broadcast address for this subnet.**  
• The default gateway is incorrect.  
• The host address and default gateway are swapped.  
  
  
  
31. Refer to the exhibit. What two statements are true based on the output shown? (Choose two.)  
• the reported distance to network 172.16.1.0 is 2172416  
• 192.168.10.5 and 192.168.10.9 are feasible successors  
• **neighbors 192.168.10.9 and 192.168.10.5 have auto summary disabled.**  
• **router 3 is load balancing traffic to the 172.16.3.0 network across its serial interfaces.**  
• all interfaces shown on Router3 are in the passive state and will not send EIGRP advertisements  
  
32. Which of the following are required when adding a network to the OSPF routing process configuration? (Choose three.)  
• **network address**  
• loopback address  
• autonomous system number  
• subnet mask  
• **wildcard mask**  
• **area ID**  
  
  
  
33. Refer to the exhibit. All routers in the network are running RIPv2 and EIGRP with default routing protocol settings and have interfaces configured with the bandwidths that are shown in the exhibit. Which protocol will be used and how will traffic between the Router1 LAN and Router5 LAN be routed through the network?  
• RIPv2 will load balance across both paths between Router1 and Router5.  
• EIGRP will load balance across both paths between Router1 and Router5.  
• RIPv2 traffic will use the path Router1, Router2, Router5 because it has the least hops.  
• **EIGRP traffic will use the path Router1, Router3, Router4, Router5 because it has the best metric.**  
  
  
  
34. Refer to the exhibit. When troubleshooting a network, it is important to interpret the output of various router commands. On the basis of the exhibit, which three statements are true? (Choose three.)  
• **The missing information for Blank 1 is the command show ip route.**  
• The missing information for Blank 1 is the command debug ip route.  
• The missing information for Blank 2 is the number 100.  
• **The missing information for Blank 2 is the number 120.**  
• The missing information for Blank 3 is the letter R.  
• **The missing information for Blank 3 is the letter C.**  
  
35. Which three statements are true of holddown timers? (Choose three.)  
• used by link state routing protocols to prevent routing loops  
• **prevent update messages from reinstating a route that may have gone bad**  
• **allow routers to still forward packets to destination networks that are in holddown**  
• limit the number of hops a packet can traverse through the network before it is discarded  
• prevent a router advertising a network through the same interface from which the network was learned  
• **permit lower metric updates received from any neighboring router to reinstate the route to a possibly down network**  
  
36. Which two router component and operation pair are correctly described? (Choose two.)  
• DRAM -loads the bootstrap  
• RAM -stores the operating system  
• Flash -executes diagnostics at bootup  
• **NVRAM -stores the configuration file**  
• ROM -stores the backup configuration file  
• **POST -runs diagnostics on hardware modules**  
  
37. A router has learned about a network through static and dynamic routing processes. Which route will be used to reach network 192.168.168.0?  
• D 192.168.168.0/24 [90/2195456] via 192.168.200.1, 00:00:09, Ethernet0  
• O 192.168.168.0/24 [110/1012] via 192.168.200.1, 00:00:22, Ethernet0  
• R 192.168.168.0/24 [120/1] via 192.168.200.1, 00:00:17, Ethernet0  
• **S 192.168.168.0/24 [1/0] via 192.168.200.1**  
  
  
  
38. Refer to the exhibit. Routers 1 and 2 are directly connected over a serial link. Pings are failing between the two routers. What change by the administrator will correct the problem?  
• Set the encapsulation on both routers to PPP.  
• Decrease the bandwidth on Serial 0/1/0 on router 2 to 1544.  
• Change the cable that connects the routers to a crossover cable.  
• **Change the IP address on Serial 0/1/0 on router 2 to 192.168.0.1/30.**  
  
  
  
39. Refer to the exhibit. The network administrator issues the command no ip classless on Router1. What forwarding action will take place on a packet that is received by Router1 and is destined for host 192.168.0.26?  
• **The packet will be dropped.**  
• The packet will be forwarded to the gateway of last resort.  
• The packet will match the 192.168.0.0 network and be forwarded out Serial 0/0.  
• The packet will most closely match the 192.168.0.8 subnet and be forwarded out Serial 0/1.  
  
40. Which three statements about routing protocols are true? (Choose three.)  
• **OSPF elects designated routers on multiaccess links.**  
• RIP does not support classless routing.  
• **EIGRP supports unequal cost load balancing.**  
• EIGRP uses broadcast traffic to establish adjacencies with its neighbors.  
• **RIP does not advertise a route beyond a hop count of 15.**  
• OSPF can convergence more quickly because it can find a feasible successor in its topology table when a successor route goes down.  
  
41. A network administrator has configured a default route on Router\_A but it is not being shared with adjacent Router\_B and the other routers in the OSPF area. Which command will save the administrator the time and trouble of configuring this default route on Router\_B and all of the other routers in the OSPF area?  
• Router\_A(config-router)# ospf redistribute default-route  
• Router\_B(config-router)# ospf redistribute default-route  
• **Router\_A(config-router)# default-information originate**  
• Router\_B(config-router)# default-information originate  
• Router\_A(config-router)# ip ospf update-default  
• Router\_B(config-router)# ip ospf update-default  
  
  
  
42. Refer to the exhibit. Hosts on the BOS Fa0/0 LAN are able to ping the Fa0/1 interface on the JAX router and all interfaces on the BOS and ORL routers. Why would hosts from the 10.0.0.0/24 network not be able to ping hosts on the Fa0/0 LAN of the JAX router?  
• The JAX router has the wrong process ID.  
• **The JAX router needs the network 10.0.0.0 0.0.0.255 area 0 command.**  
• The JAX router needs the network 192.168.3.0 0.0.0.255 area 0 command.  
• The BOS router needs the network 192.168.3.0 0.0.0.255 area 0 command.  
  
43. Using default settings, what is the next step in the router boot sequence after the IOS loads from flash?  
• Perform the POST routine.  
• Search for a backup IOS in ROM.  
• Load the bootstrap program from ROM.  
• Load the running-config file from RAM.  
• **Locate and load the startup-config file from NVRAM.**  
  
44. Which of the following are primary functions of a router? (Choose two.)  
• **packet switching**  
• microsegmentation  
• domain name resolution  
• **path selection**  
• flow control  
  
  
  
45. Refer to the exhibit. The results of the show ip route command are displayed in the graphic for Router R2. Which route will be selected for a packet with a destination address of 10.1.4.1?  
• static route to 10.1.0.0/22  
• RIP route to 10.1.0.0/23  
• RIP route to 10.1.0.0/24  
• **0.0.0.0/0 via 192.168.0.1**  
  
46. The network administrator configures the router with the ip route 172.16.1.0 255.255.255.0 172.16.2.2 command. How will this route appear in the routing table?  
• C 172.16.1.0 is directly connected, Serial0/0  
• S 172.16.1.0 is directly connected, Serial0/0  
• C 172.16.1.0 [1/0] via 172.16.2.2  
• **S 172.16.1.0 [1/0] via 172.16.2.2**  
  
  
  
47. Refer to the exhibit. What is the most efficient summarization of the routes attached to router R1?  
• 198.18.0.0/16  
• **198.18.48.0/21**  
• 198.18.32.0/22  
• 198.18.48.0/23  
• 198.18.49.0/23  
• 198.18.52.0/22  
  
  
  
48. Refer to the exhibit. Which path will traffic from the 172.16.1.0/24 network take to get to the 10.0.0.0/24 network?  
• ADC  
• ABC  
• **It will load balance the traffic between ADC and ABC**  
• It will send the traffic via ABC, and will use ADC as a backup path only when ABC fails.  
  
49. Which of the following should be considered when troubleshooting a problem with the establishment of neighbor relationships between OSPF routers? (Choose three.)  
• **OSPF interval timers mismatch**  
• gateway of last resort not redistributed  
• **interface network type mismatch**  
• no loopback interface configured  
• administrative distance mismatch  
• **inconsistent authentication configuration**  
  
50. When presented with multiple valid routes to a destination, what criteria does a router use to determine which routes to add to the routing table?  
• The router selects the routes with the best metric. All routes that have the same best metric are added to the routing table.  
• **The router first selects routes with the lowest administrative distance. The resulting routes are then prioritized by metric and the routes with the best metric are added to the routing table.**  
• The router selects the routes with the lowest administrative distance. All routes with the same lowest administrative distance are added to the routing table.  
• The router installs all routes in the routing table but uses the route with the best metric most when load balancing.  
  
  
  
51. Refer to the exhibit. All router interfaces are configured with an IP address and are operational. If no routing protocols or static routes are configured, what information will be included in the show ip route command output for router A?  
• All of the 192.168.x.0 networks will be in the routing table.  
• **Routes to networks 192.168.1.0/24, 192.168.2.0/24, and 192.168.3.0/24 will be in the routing table.**  
• The routing table will be empty because routes and dynamic routes have not been configured.  
• A default route is automatically installed in the routing table to allow connectivity between the networks.  
  
  
  
52. A network administrator has enabled RIP on routers B and C in the network diagram. Which of the following commands will prevent RIP updates from being sent to Router A?  
• A(config)# router rip  
A(config-router)# passive-interface S0/0  
• B(config)# router rip  
B(config-router)# network 192.168.25.48  
B(config-router)# network 192.168.25.64  
• A(config)# router rip  
A(config-router)# no network 192.168.25.32  
• **B(config)# router rip  
B(config-router)# passive-interface S0/0**  
• A(config)# no router rip  
  
  
  
53. Refer to the exhibit. The network is using the RIPv2 routing protocol. If network 10.0.0.0 goes down, what mechanism will prevent Router1 from advertising false routing information back to Router2?  
• triggered updates  
• poison reverse  
• holddown timers  
• **split horizon**  
  
  
  
54. Refer to the exhibit. How many routes are both level 1 and qualify for use as an ultimate route?  
• 1  
• **2**  
• 3  
• 4  
• 6  
  
  
  
55. Refer to exhibit. Given the topology shown in the exhibit, what three commands are needed to configure EIGRP on the Paris router? (Choose three.)  
• **Paris(config)# router eigrp 100**  
• Paris(config)# router eigrp  
• Paris(config-router)# network 192.168.6.0  
• **Paris(config-router)# network 192.168.7.0**  
• **Paris(config-router)# network 192.168.8.0**  
• Paris(config-router)# network 192.168.9.0  
  
56. What command would the network administrator apply to a router that is running OSPF to advertise the entire range of addresses included in 172.16.0.0/19 in area 0?  
• R1(config-router)# network 172.16.0.0 0.0.0.255 area 0  
• R1(config-router)# network 172.16.0.0 0.0.3.255 area 0  
• R1(config-router)# network 172.16.0.0 0.0.15.255 area 0  
• **R1(config-router)# network 172.16.0.0 0.0.31.255 area 0**  
  
57. Which three statements are true regarding the encapsulation and de-encapsulation of packets when traveling through a router? (Choose three.)  
• **The router modifies the TTL field, decrementing it by one.**  
• The router changes the source IP to the IP of the exit interface.  
• **The router maintains the same source and destination IP.**  
• **The router changes the source physical address to the physical address of the exit interface.**  
• The router changes the destination IP to the IP of the exit interface.  
• The router sends the packet out all other interfaces, besides the one it entered the router on.