



300-101^{Q&As}

Implementing Cisco IP Routing

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QUESTION 1

In which two ways can split horizon issues be overcome in a Frame Relay network environment? (choose two.)

- A. Configuring one physical serial interface with Frame Relay to various remote sites.
- B. Configure a loopback interface with Frame Relay to various remote sites
- C. Configuring multiple subinterfaces on a single physical interface to various remote sites.
- D. Enabling split horizon.
- E. Disabling split horizon.

Correct Answer: CE

1/ IP split horizon checking is disabled by default for Frame Relay encapsulation to allow routing updates to go in and out of the same interface. An exception is the Enhanced Interior Gateway Routing Protocol (EIGRP) for which split horizon must be explicitly disabled. 2/Configuring Frame Relay subinterfaces ensures that a single physical interface is treated as multiple virtual interfaces. This capability allows you to overcome split horizon rules so packets received on one virtual interface can be forwarded to another virtual interface, even if they are configured on the same physical interface. <http://www.cisco.com/c/en/us/support/docs/wan/frame-relay/14168-fr-faq.html>

QUESTION 2

What is true about peer groups? (Choose two)

- A. Optimize backdoor routes
- B. If you change configuration then it effects all peers in the group
- C. Peer groups can send soft updates to all
- D. Updates can be sent with multicast

Correct Answer: BC

QUESTION 3

Which option is invalid when configuring Unicast Reverse Path Forwarding?

- A. allow self ping to router
- B. allow default route
- C. allow based on ACL match
- D. source reachable via both



Correct Answer: D

QUESTION 4

Which Cisco IOS VPN technology leverages IPsec, mGRE, dynamic routing protocol, NHRP, and Cisco Express Forwarding?

- A. FlexVPN
- B. DMVPN
- C. GETVPN
- D. Cisco Easy VPN

Correct Answer: B

is a dynamic tunneling form of a virtual private

Dynamic Multipoint Virtual Private Network (DMVPN)

network (VPN) supported on Cisco IOS-based routers and Unix-like Operating Systems based on the standard protocols, GRE, NHRP and Ipsec. This DMVPN provides the capability for creating a dynamicmesh VPN network without having

to pre-configure (static) all possible tunnel end-point peers, including Ipsec (Internet Protocol Security) and ISAKMP (Internet Security Association and Key Management Protocol) peers. DMVPN is initially configured to build out a hub-andspoke network by statically configuring

the hubs (VPN headends) on the spokes, no change in the configuration on the hub is required to accept new spokes. Using this initial hub-and-spoke network, tunnels between spokes can be dynamically built on demand (dynamic-mesh)

without additional configuration on the hubs or spokes. This dynamic-mesh capability alleviates the need for any load on the hub to route data between the spoke networks.

DMVPN is combination of the following technologies:

Multipoint GRE (mGRE)

Next-Hop Resolution Protocol (NHRP)

Dynamic Routing Protocol (EIGRP, RIP, OSPF, BGP)

Dynamic Ipsec encryption

Cisco Express Forwarding (CEF)

Reference: http://en.wikipedia.org/wiki/Dynamic_Multipoint_Virtual_Private_Network

QUESTION 5

A network engineer is asked to configure a "site-to-site" IPsec VPN tunnel. One of the last things that the engineer does is to configure an access list (access-list 1 permit any) along with the command ip nat inside source list 1 int s0/0



overload. Which functions do the two commands serve in this scenario?

- A. The command access-list 1 defines interesting traffic that is allowed through the tunnel
- B. The command ip nat inside source list 1 int s0/0 overload disables "many-to-one" access for all devices on a defined segment to share a single IP address upon exiting the external interface.
- C. The command access-list 1 permit any defines only one machine that is allowed through the tunnel.
- D. The command ip nat inside source list 1 int s0/0 overload provides "many-to-one" access for all devices on a defined segment to share a single IP address upon exiting the external interface.

Correct Answer: D

Note in the previous second configuration, the NAT pool "ovrld" only has a range of one address. The keyword overload used in the ip nat inside source list 7 pool ovrld overload command allows NAT to translate multiple inside devices to the

single address in the pool.

Reference: http://www.cisco.com/en/US/tech/tk648/tk361/technologies_tech_note09186a0080094e77.shtml

QUESTION 6

Which DHCP option provides a TFTP server that Cisco phones can use to download a configuration?

- A. DHCP Option 66
- B. DHCP Option 68
- C. DHCP Option 82
- D. DHCP Option 57

Correct Answer: A

QUESTION 7

What is the default authentication in RIPv2 when authentication is enabled?

- A. SHA1 authentication
- B. Enable password authentication
- C. Plaintext authentication
- D. MD5 authentication

Correct Answer: C



QUESTION 8

Drag each statement about authentication mechanisms on the left to the matching authentication type on the right.

Select and Place:

The interface for Question 8 shows two categories on the left: CHAP and PAP. The CHAP category has two empty slots, and the PAP category has two empty slots. On the right, there are four statements to be dragged:

- Requires a username and password only.
- Generates a unique authentication string for each transaction.
- Provides minimal security.
- Supports mid-session re-authentication.

Correct Answer:

The correct answer interface shows the CHAP category with two statements placed in its slots: "Generates a unique authentication string for each transaction." and "Supports mid-session re-authentication." The PAP category has two empty slots. On the right, there are four empty slots for dragging statements.

QUESTION 9

What does a Cisco router use as default username for CHAP authentication?

- A. chap
- B. Hostname
- C. cisco
- D. ppp

Correct Answer: B



QUESTION 10

How does an EVN provide end-to-end virtualization and separation of data traffic from multiple networks?

- A. It tags traffic with an 802.1q tag at the edge interface.
- B. It tags traffic with an 802.1q tag at trunk interface.
- C. It tags traffic with a virtual network tag at the trunk interface.
- D. It tags traffic with a virtual network tag at the edge interface

Correct Answer: C

QUESTION 11

Your network consists of a large hub-and-spoke Frame Relay network with a CIR of 56 kb/s for each spoke. Which statement about the selection of a dynamic protocol is true?

- A. EIGRP would be appropriate if LMI type ANSI is NOT used.
- B. EIGRP would be appropriate, because the Frame Relay spokes could be segmented into their own areas
- C. EIGRP would be appropriate, because by default, queries are not propagated across the slow speed Frame Relay links.
- D. EIGRP would be appropriate, because you can manage how much bandwidth is consumed over the Frame Relay interface.

Correct Answer: D

QUESTION 12

By default, which type of IPv6 address is used to build the EUI-64 bit format?

- A. unique-local address
- B. IPv4-compatible IPv6 address
- C. link-local address
- D. aggregatable-local address

Correct Answer: C



QUESTION 13

- A. NTP trusted key authorises the entity
- B. NTP Authentication Key ID enables NTP on the interface
- C. http://bbs.hh010.com
- D. http://bbs.hh010.com

Correct Answer: A

QUESTION 14

Refer to the exhibit. Given the partial configuration in the exhibit, which IPv6 statement is true ?

```
<output omitted>
|
|
| ipv6 unicast-routing
|
| interface Ethernet0
|   ip address 192.168.99.1 255.255.255.0
|
| interface Tunnel2002
|   no ip address
|   no ip redirects
|   ipv6 address 2002::COA8:6301:1/128
|   tunnel source ethernet0
|   tunnel mode ipv6ip 6to4
|
| ipv6 route 2002::/16 Tunnel2002
| ipv6 route ::/0 2002::COA8:2101::1
|
<output omitted>
```

- A. The configuration is an example of an encrypted IPv6 VPN tunnel.
- B. The configuration is an example of a one to one IPv6 tunnel.
- C. The configuration is an example of a 6to4 tunnel.
- D. The configuration is an example of a 4to6 tunnel.

Correct Answer: C

QUESTION 15

Which of the following is a GRE Tunnel characteristic?



- A. GRE impose more CPU overhead than IPsec on VPN gateways
- B. GRE tunnels can run through IPsec tunnels.
- C. GRE Tunnel doesn't have support for IPv6
- D. GRE consists of two sub-protocols: Encapsulated Security Payload (ESP) and Authentication Header (AH).

Correct Answer: B

QUESTION 16

Which version or versions of NetFlow support MPLS?

- A. all versions of NetFlow
- B. NetFlow version 9
- C. NetFlow version 8
- D. NetFlow version 5
- E. NetFlow version 8 and 9

Correct Answer: B

QUESTION 17

Which statement is true about the command `ipv6 ospf 1 area 0`?

- A. It must be issued in router global configuration mode to enable the OSPF process for IPv6.
- B. It must be issued in interface configuration mode to enable the OSPF process for IPv6.
- C. It must be issued before the network command to enable the OSPF process for IPv6.
- D. It must be issued after the network command to enable the OSPF process for IPv6.

Correct Answer: B

QUESTION 18

After reviewing the EVN configuration, a network administrator notices that a predefined EVN, which is known as "vnet global" was configured. What is the purpose of this EVN? (OR) What is the purpose of "vnet global"?

- A. It defines the routing scope for each particular EVN edge interface.
- B. It aggregates and carries all dot1q tagged traffic.



- C. It refers to the global routing context and corresponds to the default RIB.
- D. It safeguards the virtual network that is preconfigured to avoid mismatched routing instances.

Correct Answer: C

QUESTION 19

Which three NTP operating modes must the trusted-key command be configured on for authentication to operate properly? (Choose Three)

- A. interface
- B. client
- C. peer
- D. server
- E. broadcast

Correct Answer: BDE

QUESTION 20

What authentication type is used by SNMPv2?

- A. username and password
- B. community strings
- C. HMAC-MD5
- D. HMAC-SHA

Correct Answer: B

QUESTION 21

Refer to the following configuration command.

```
router(conttg)# ip nat inside source static tcp 172.16.10.8 8080 172.16.10.8 80
```

Which statement about the command is true?

- A. Any packet that is received in the inside interface with a source IP port address of 172.16.10.8:80 is translated to 172.16.10.8 8:80



- B. Any packet that is received in the inside interface with a source IP address of 172 16 10 8 is redirected to port 8080 or port 80
- C. The router accepts only a TCP connection from port 8080 and port 80 on IP address 172 16 10 8
- D. Any packet that is received in the inside interface with a source IP port address of 172 16 10 8 8080 is translated to 172.16.10.8 80

Correct Answer: D

Explanation: <http://www.cisco.com/c/en/us/support/docs/ip/network-address-translation-nat/13772-12.html#topic9>

QUESTION 22

Which access list entry checks for an ACK within a packet header?

- A. access-list 49 permit ip any any eq 21 tcp-ack
- B. access-list 49 permit tcp any any eq 21 tcp-ack
- C. access-list 149 permit tcp any any eq 21 established
- D. access-list 49 permit tcp any any eq 21 established

Correct Answer: C

QUESTION 23

Which SNMP verification command shows the encryption and authentication protocols that are used in SNMPV3?

- A. show snmp group
- B. show snmp user
- C. show snmp
- D. show snmp view

Correct Answer: B

QUESTION 24

Which routing protocol routes traffic through the best path and second best path at the same time?

- A. OSPF
- B. EIGRP
- C. RIP



D. BGP

Correct Answer: B

QUESTION 25

A network administrator notices that the BGP state drops and logs are generated for missing BGP hello keepalives. What is the potential problem?

- A. Incorrect neighbor options
- B. Hello timer mismatch
- C. BGP path MTU enabled
- D. MTU mismatch

Correct Answer: D

QUESTION 26

Refer to the following configuration command.

```
router(conttg)# ip nat inside source static tcp 172.16.10.8 8080 172.16.10.8 80
```

Which statement about the command is true?

- A. Any packet that is received in the inside interface with a source IP port address of 172.16.10.8:80 is translated to 172.16.10.8 8:80
- B. Any packet that is received in the inside interface with a source IP address of 172 16 10 8 is redirected to port 8080 or port 80
- C. The router accepts only a TCP connection from port 8080 and port 80 on IP address 172 16 10 8
- D. Any packet that is received in the inside interface with a source IP port address of 172 16 10 8 8080 is translated to 172.16.10.8 80

Correct Answer: D

Explanation: <http://www.cisco.com/c/en/us/support/docs/ip/network-address-translation-nat/13772-12.html#topic9>

QUESTION 27

Which command do you enter to filter only routing updates that are sent through interface GigabitEthernet0/0?

- A. R1(config-if)#passive-interface GigabitEthernet0/0
- B. R1(config-router)#no passive-interface GigabitEthernet0/0
- C. R1(config-router)#passive-interface GigabitEthernet0/0



- D. R1(config-router)passive-interface default
- E. R1(config-if)#passive-interface default
- F. R1(config-router)#distribute-list 1 GigabitEthernet0/0 out

Correct Answer: F

QUESTION 28

What is the command to enable NAT-PT?

- A. ipv6 nat
- B. ipv6 nat enable
- C. ipv6 nat-pt
- D. ipv6 nat-pt enable

Correct Answer: A

QUESTION 29

After you review the output of the command show ipv6 interface brief, you see that several IPv6 addresses have the 16-bit hexadecimal value of "FFFE" inserted into the address. Based on this information, what do you conclude about these IPv6 addresses?

- A. IEEE EUI-64 was implemented when assigning IPv6 addresses on the device.
- B. The addresses were misconfigured and will not function as intended.
- C. IPv6 addresses containing "FFFE" indicate that the address is reserved for multicast
- D. The IPv6 universal/local flag (bit 7) was flipped.
- E. IPv6 unicast forwarding was enabled, but IPv6 Cisco Express Forwarding was disabled.

Correct Answer: A

Extended Unique Identifier (EUI), as per RFC2373, allows a host to assign itself a unique 64-Bit IP Version 6 interface identifier (EUI-64). This feature is a key benefit over IPv4 as it eliminates the need of manual configuration or DHCP as

in the world of IPv4. The IPv6 EUI-64 format address is obtained through the 48-bit MAC address. The MAC address is first separated into two 24-bit parts, with one being OUI (Organizationally Unique Identifier) and the other being NIC specific.

The 16-bit 0xFFFF is then inserted between these two 24-bit parts to form the 64-bit EUI address. IEEE has chosen FFFF as a reserved value which can only be used for EUI-64.



appear in EUI-64 generated from the EUI-48 MAC address

Next, the seventh bit from the left, or the universal/local (U/L) bit, needs to be inverted. This bit identifies whether this interface identifier is universally or locally administered. If 0, the address is locally administered and if 1, the address is

globally unique. It is worth noticing that in the OUI portion, the globally unique addresses assigned by the IEEE have always been set to 0 whereas the locally created addresses have 1 configured. Therefore, when the bit is inverted, it

maintains its original scope (global unique address is still global unique and vice versa). The reason for inverting can be found in RFC4291 section 2.5.1.

Once the above is done, we have a fully functional EUI-64 format address. Reference:
<https://supportforums.cisco.com/document/100566/understanding-ipv6-eui-64-bit-address>

QUESTION 30

What command is needed to get the ip address assigned from the PPPOE server?

- A. Interface dialer
- B. pppoe enable
- C. ip address negotiated
- D. ip address auto negotiated

Correct Answer: C

QUESTION 31

Which three are characteristics of IPv6? (Choose three.)

- A. An IPv6 address is 128 bits long.
- B. An IPv6 header is 20 bits long.
- C. An IPv6 header contains the next header field.
- D. An IPv6 header contains the protocol field.
- E. IPv6 routers send RA messages.
- F. An IPv6 header contains the header checksum field.

Correct Answer: ACE

QUESTION 32

What is true about EIGRP's redistributed static routes and summarized routes (choose two):

- A. summary routes have AD of 5



- B. static redistributed routes have AD of 170
- C. <https://www.certbus.com/300-101.html>
- D. <https://www.certbus.com/300-101.html>

Correct Answer: AB

QUESTION 33

Which option is a prerequisite for stateful NAT64?

- A. IPsec for IPv6
- B. DNS64
- C. Application Level Gateway
- D. ICMP64

Correct Answer: B

QUESTION 34

Which feature can mitigate fragmentation issues within network segments that are between GRE endpoints?

- A. PMTU
- B. ICMP DF bit
- C. TCP Flow Control
- D. TCP MSS

Correct Answer: D

QUESTION 35

Which condition prevents the establishment of a DMVPN tunnel between two spokes?

- A. HSRP is enabled on the spoke devices
- B. IPsec is enabled on the spoke devices
- C. the two spokes are behind different PAT devices



D. the two spokes have different tunnel keepalive settings.

Correct Answer: C

https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/sec_conn_dmvpn/configuration/xr-16/sec-conn-dmvpn-xr-16-book/sec-conn-dmvpn-dt-spokes-b-nat.html

"If one spoke is behind one NAT device and another different spoke is behind another NAT device, and Peer Address Translation (PAT) is the type of NAT used on both NAT devices, then a session initiated between the two spokes cannot be established."

QUESTION 36

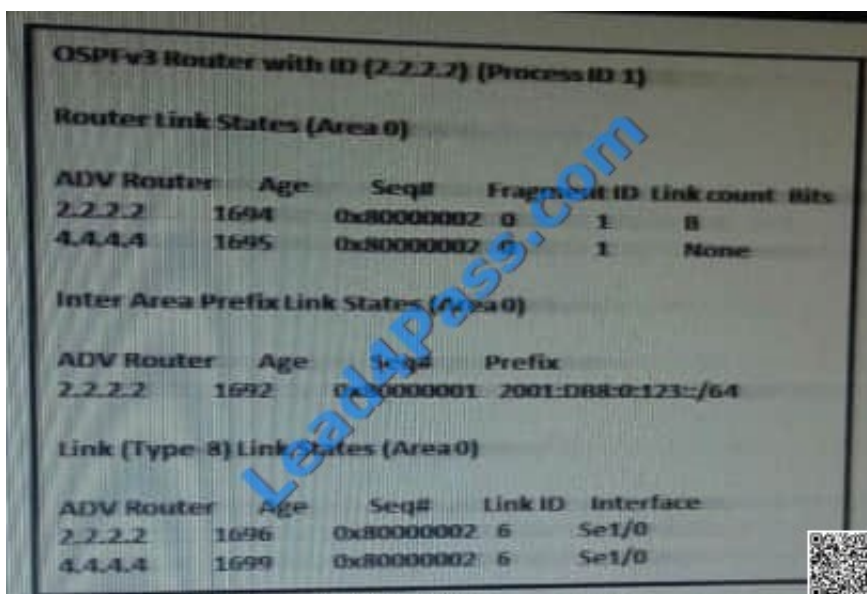
Which LSA type in OSPFv3 is used for link-local updates?

- A. Type 5
- B. Type 8
- C. Type 4
- D. Type 9

Correct Answer: B

QUESTION 37

Refer to the exhibit. A network engineer executes the show ipv6 ospf database command and is presented with the output that is shown. Which flooding scope is referenced in the link-state type?



A. link-local



- B. area
- C. As (OSPF domain)
- D. reserved

Correct Answer: B

QUESTION 38

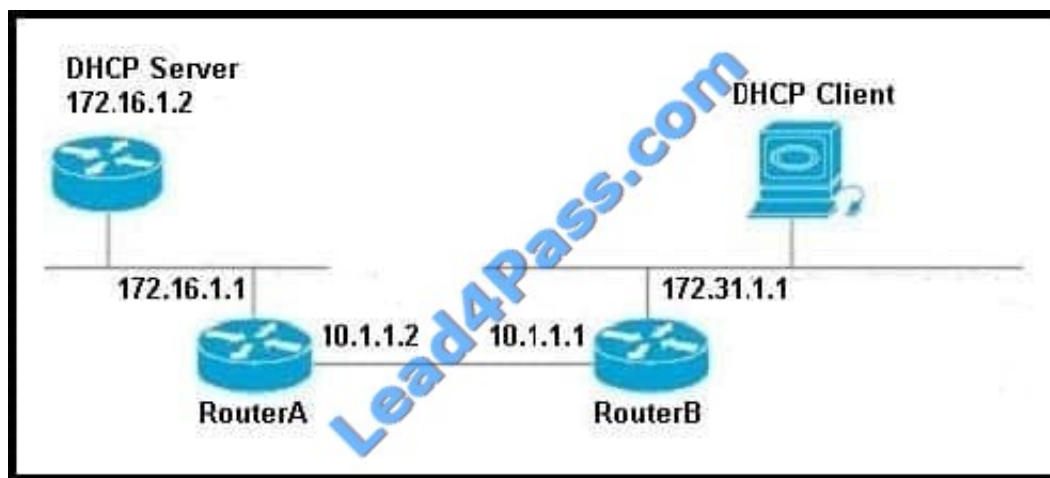
Which two statements indicate a valid association mode for NTP synchronization? (Choose two.)

- A. The client polls NTP servers for time.
- B. The client broadcasts NTP requests.
- C. The client listens to NTP broadcasts.
- D. The client creates a VPN tunnel to an NTP server
- E. The client multicasts NTP requests.

Correct Answer: AC

QUESTION 39

Refer to the exhibit. The DHCP client is unable to receive a DHCP address from the DHCP server. Consider the following output: `hostname RouterB ! interface fastethernet 0/0 ip address 172.31.1.1 255.255.255.0 interface serial 0/0 ip address 10.1.1.1 255.255.255.252 ! ip route 172.16.1.0 255.255.255.0 10.1.1.2` Which configuration is required on the Router B fastethernet 0/0 port in order to allow the DHCP client to successfully receive an IP address from the DHCP server?



- A. RouterB(config-if)# ip helper-address 172.16.1.2
- B. RouterB(config-if)# ip helper-address 172.16.1.1



C. RouterB(config-if)# ip helper-address 172.31.1.1

D. RouterB(config-if)# ip helper-address 255.255.255.255

Correct Answer: A

QUESTION 40

ou have a router has some interface configured with 10Gbps interface and 1Gbps interface. Which command you use to optimize higher bandwidth?

A. auto-cost reference-bandwidth 10000

B. auto-cost reference-bandwidth 1000

C. auto-cost reference-bandwidth 100

D. <https://www.certbus.com/300-101.html>

Correct Answer: A

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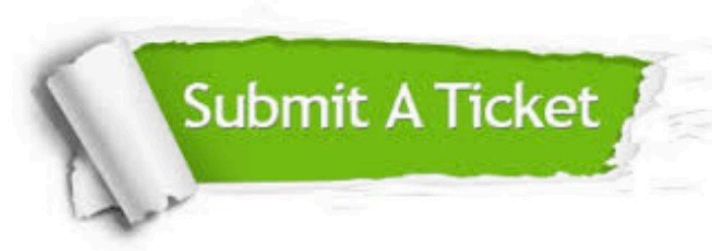
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