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300-420

Designing Cisco Enterprise Networks



Exam A

QUESTION 1

Which solution allows overlay VNs to communicate with each other in an SD-WAN Architecture?

- A. External fusion routers can be used to map VNs to VRFs and selectively route traffic between VRFs.
- B. GRE tunneling can be configured between fabric edges to connect one VN to another.
- C. SGTs can be used to permit traffic from one VN to another.
- D. Route leaking can be used on the fabric border nodes to inject routes from one VN to another.

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

QUESTION 2 An engineer must design a VPN solution for a company that has multiple branches connecting to a main office. What are two advantages of using DMVPN instead of IPsec tunnels to accomplish this task? (Choose two.)

- A. support for AES 256-bit encryption
- B. greater scalability
- C. support for anycast gateway
- D. lower traffic overhead
- E. dynamic spoke-to-spoke tunnels

Correct Answer: BE

Section: (none)

Explanation

Explanation/Reference:

QUESTION 3 Which NETCONF operation creates filtering that is specific to the session notifications?

- A. <create-subscription>
- B. <commit>
- C. <notification>
- D. <logging>

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 4

An enterprise customer has these requirements:

- end-to-end QoS for the business-critical applications and VoIP services based on CoS marking.
- flexibility to offer services such as IPv6 and multicast without any reliance on the service provider.
- support for full-mesh connectivity at Layer 2.

Which WAN connectivity option meets these requirements?

- A. VPWS



- B. MPLS VPN
- C. DMVPN
- D. VPLS

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

QUESTION 5 What is a benefit of using VRRPv3 as compared to VRRPv2?

- A. VRRPv3 supports IPv4 and IPv6
- B. VRRPv3 supports authentication
- C. VRRPv3 supports preemption
- D. VRRPv3 supports stateful switchover

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 6

A customer is discussing QoS requirements with a network consultant. The customer has specified that end-to-end path verification is a requirement. Which QoS solution meets this requirement?

- A. IntServ model with RSVP to support the traffic flows
- B. DiffServ model with PHB to support the traffic flows
- C. marking traffic at the access layer with DSCP to support the traffic flows
- D. marking traffic at the access layer with CoS to support the traffic flows

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 7 Which nonproprietary mechanism can be used to automate rendezvous point distribution in a large PIM domain?

- A. Embedded RP
- B. BSR
- C. Auto-RP
- D. Static RP

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

QUESTION 8

Which QoS feature responds to network congestion by dropping lower priority packets?

- A. CBWFQ
- B. tail drop
- C. WRED
- D. strict priority

Correct Answer: C

Section: (none)

Explanation

Explanation/Reference:

QUESTION 9

Which two BGP features will result in successful route exchanges between eBGP neighbors sharing the same AS number? (Choose two.)

- A. advertise-best-external
- B. bestpath as-path ignore
- C. client-to-client reflection
- D. as-override
- E. allow-as-in

Correct Answer: DE

Section: (none)

Explanation

Explanation/Reference:

QUESTION 10

A company is running BGP on a single router, which has two connections to the same ISP. Which BGP feature ensures traffic is load balanced across the two links to the ISP?

- A. Multihop
- B. Multipath Load Sharing
- C. Next-Hop Address Tracking
- D. AS-Path Prepending

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

QUESTION 11 Which design consideration should be observed when EIGRP is configured on Data Center switches?

- A. Perform manual summarization on all Layer 3 interfaces to minimize the size of the routing table.
- B. Prevent unnecessary EIGRP neighborships from forming across switch virtual interfaces.
- C. Lower EIGRP hello and hold timers to their minimum settings to ensure rapid route reconvergence.
- D. Configure multiple EIGRP autonomous systems to segment Data Center services and applications.

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 12 Which design consideration must be made when using IPv6 overlay tunnels?

- A. Overlay tunnels that connect isolated IPv6 networks can be considered a final IPv6 network architecture.
- B. Overlay tunnels should only be considered as a transition technique toward a permanent solution.
- C. Overlay tunnels can be configured only between border devices and require only the IPv6 protocol stack.
- D. Overlay tunneling encapsulates IPv4 packets in IPv6 packets for delivery across an IPv6 infrastructure.

Correct Answer: C

Section: (none)

Explanation

Explanation/Reference:

QUESTION 13 When a network is designed using IS-IS protocol, which two circuit types are supported?
(Choose two.)

- A. nonbroadcast multiaccess
- B. multiaccess
- C. point-to-multipoint
- D. nonbroadcast
- E. point-to-point

Correct Answer: BE

Section: (none)

Explanation

Explanation/Reference:



QUESTION 14 What is an advantage of designing an out-of-band network management solution?

- A. In the event of a production network outage, network devices can still be managed.
- B. There is no separation between the production network and the management network.
- C. In the event of a production network outage, it can be used as a backup network path.
- D. It is less expensive than an in-band management solution

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 15 Which consideration must be taken into account when using the DHCP relay feature in a Cisco SD-Access Architecture?

- A. DHCP-relay must be enabled on fabric edge nodes to provide the correct mapping of DHCP scope to the local anycast gateway.
- B. A DHCP server must be enabled on the border nodes to allow subnets to span multiple fabric edges.
- C. DHCP servers must support Cisco SD-Access extensions to correctly assign IPs to endpoints in an SD-Access fabric with anycast gateway.
- D. DHCP Option-82 must be enabled to map the circuit IP option to the access fabric node where the DHCP discover originated.

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 16 Which feature must be incorporated into the campus LAN design to enable Wake on LAN?

- A. dynamic ARP Inspection Snooping on layer 2 devices
- B. directed broadcasts on layer 3 devices
- C. proxy ARP on layer 3 devices
- D. DHCP Snooping on layer 2 devices

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

QUESTION 17 Which function are fabric intermediate nodes responsible for in an SD-Access Architecture?

- A. mapping EIDs to RLOCs
- B. encapsulating user traffic in a VXLAN header including the SGT
- C. registering new endpoints in the HTDB
- D. transporting IP packets between edge nodes and border nodes

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:



QUESTION 18

An engineer is designing a QoS policy that queues excess packets for later transmission. Which mechanism must be included in the design?

- A. shaping
- B. WRED
- C. policing
- D. RED

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 19

An organization is designing a detailed QoS plan that limits bandwidth to specific rates. Which two parameters are supported by the traffic policing feature? (Choose two.)

- A. violating
- B. marking
- C. shaping
- D. bursting
- E. conforming

Correct Answer: BC

Section: (none)

Explanation

Explanation/Reference:

QUESTION 20 An engineer is looking for a standards-driven YANG model to manage a multivendor network environment. Which model must the engineer choose?

- A. Native
- B. OpenConfig
- C. IETF
- D. IEEE NETCONF

Correct Answer: C

Section: (none)

Explanation

Explanation/Reference:

QUESTION 21 What are two benefits of designing an SD-WAN network fabric with direct Internet access implemented at every site?
(Choose two.)

- A. It decreases latency to applications hosted by public cloud service provider.
- B. It decreases latency on Internet circuits.
- C. It increases the speed of delivery of site deployments through zero-touch provisioning.
- D. It increases the total available bandwidth on Internet circuits.
- E. It alleviates network traffic on MPLS circuits.



Correct Answer: AE

Section: (none)

Explanation

Explanation/Reference:

QUESTION 22 Which routes does the overlay management protocol advertise in an SD-WAN overlay?

- A. underlay, MPLS, and overlay
- B. primary, backup, and load-balanced
- C. prefix, TLOC, and service
- D. Internet, MPLS, and backup

Correct Answer: C

Section: (none)

Explanation

Explanation/Reference:

QUESTION 23

DRAG DROP

Drag and drop the properties from the left onto the protocols they describe on the right.

Select and Place:

Correct Answer:

Section: (none)

Explanation

Explanation/Reference:

Reference: https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/prog/configuration/166/b_166_programmability_cg/b_166_programmability_cg_chapter_01011.html

https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/prog/configuration/169/b_169_programmability_cg/configuring_yang_datamodel.html

QUESTION 24 A network solution is being designed for a company that connects to multiple Internet service providers. Which Cisco proprietary BGP path attribute will influence outbound traffic flow?

- A. Local Preference
- B. MED
- C. Weight
- D. AS Path
- E. Community

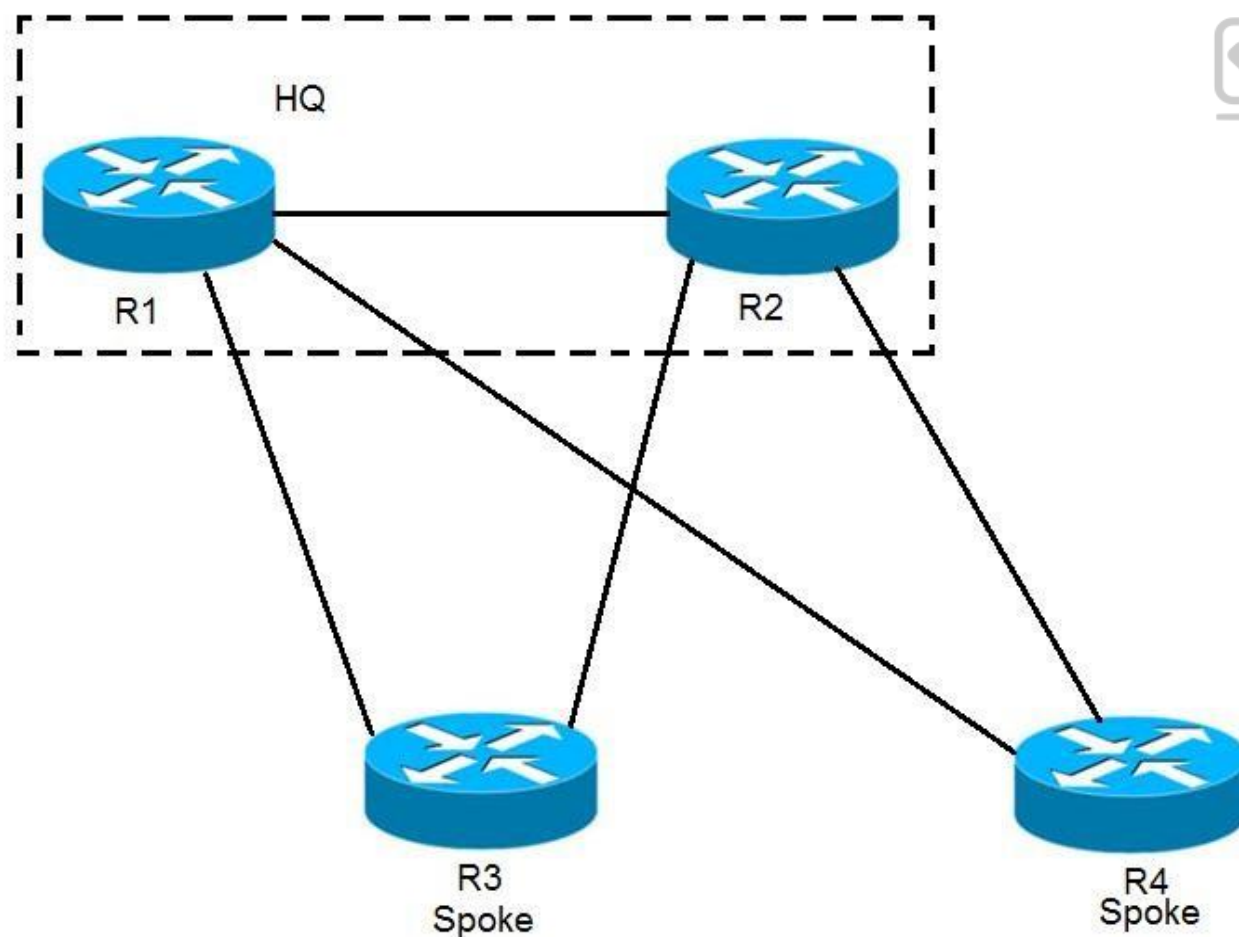
Correct Answer: C

Section: (none)

Explanation

Explanation/Reference:

QUESTION 25



Refer to the exhibit. EIGRP has been configured on all links. The spoke nodes have been configured as EIGRP stubs, and the WAN links to R3 have higher bandwidth and lower delay than the links to R4. When a link failure occurs at the R1-R2 link, what happens to traffic on R1 that is destined for a subnet attached to R2?

- A. R1 has no route to R2 and drops the traffic
- B. R1 load-balances across the paths through R3 and R4 to reach R2
- C. R1 forwards the traffic to R3, but R3 drops the traffic
- D. R1 forwards the traffic to R3 in order to reach R2

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

QUESTION 26

A company is using OSPF between its HQ location and a branch office. HQ is assigned area 0 and the branch office is assigned area 1. The company purchases a second branch office, but due to circuit delays to HQ, it decides to connect the new branch office to the existing branch office as a temporary measure. The new branch office is assigned area 2. Which OSPF configuration enables all three locations to exchange routes?

- A. The existing branch office must be configured as a stub area
- B. A virtual link must be configured between the new branch office and HQ
- C. A sham link must be configured between the new branch office and HQ
- D. The new branch office must be configured as a stub area

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:



QUESTION 27

An engineer must design a multicast network for a financial application. Most of the multicast sources also receive multicast traffic (many-to-many deployment model). To better scale routing tables, the design must not use source trees. Which multicast protocol satisfies these requirements?

- A. PIM-SSM
- B. PIM-SM
- C. MSDP
- D. BIDIR-PIM

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

QUESTION 28 An engineer is working for a large cable TV provider that requires multiple sources streaming video on different channels using multicast with no rendezvous point. Which multicast protocol meets these requirements?

- A. PIM-SM
- B. PIM-SSM
- C. any-source multicast
- D. BIDIR-PIM

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

QUESTION 29 What is one function of the vSmart controller in an SD-WAN deployment?

- A. orchestrates vEdge and cEdge connectivity
- B. responsible for the centralized control plane of the SD-WAN network
- C. provides centralized network management and a GUI to monitor and operate the SD-WAN overlay
- D. provides a data-plane at branch offices to pass traffic through the SD-WAN network

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

QUESTION 30 Which design consideration must be made when dual vEdge routers are deployed at a branch site?

- A. Use BGP AS-path prepending to influence egress traffic and use MED to influence ingress traffic from the branch.
- B. HSRP priorities must match the OMP routing policy to prefer one vEdge over the other.
- C. Traffic must be symmetrical as it egresses the vEdges and returns from remote sites for DPI to function properly.
- D. Configure BFD between vEdge routers to detect sub-second link failures.

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:



QUESTION 31 When IPsec VPNs are designed, what is a unique requirement if support for IP Multicast is required?

- A. encapsulation of traffic with GRE or VTI
- B. IPsec forwarding using transport mode
- C. additional bandwidth for headend
- D. IPsec forwarding using tunnel mode

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 32 How do endpoints inside an SD-Access network reach resources outside the fabric?

- A. a VRF fusion router is used to map resources in one VN to another VN
- B. Fabric borders use VRFs to map VNs to VRFs
- C. SD-Access transit links are used to transport encapsulated traffic from one fabric to another
- D. A fabric edge is used to de-encapsulate VXLAN traffic to normal IP traffic then transported over the outside network

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

QUESTION 33 When vEdge router redundancy is designed, which FHRP is supported?

- A. HSRP
- B. OMP
- C. GLBP
- D. VRRP

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

QUESTION 34 Which feature is required for graceful restart to recover from a processor failure?

- A. Cisco Express Forwarding
- B. Virtual Switch System
- C. Stateful Switchover
- D. Bidirectional Forwarding Detection

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 35

DRAG DROP

Drag and drop the characteristics from the left onto the correct telemetry mode on the right.

Select and Place:

Correct Answer:

Section: (none)

Explanation

Explanation/Reference:

Explanation:

In a dial-in mode, the destination initiates a session to the router and subscribes to data to be streamed. Dial-in mode is supported over gRPC in only 64-bit platforms

In a dial-out mode, the router initiates a session to the destinations based on the subscription. All 64-bit IOS XR platforms (except for NCS 6000 series routers) support gRPC and TCP protocols. All 32-bit IOS XR platforms support only TCP.

Reference:

https://www.cisco.com/c/en/us/td/docs/iosxr/asr9000/telemetry/b-telemetry-cg-asr9000-61x/b-telemetry-cg-asr9000-61x_chapter_010.html#id_36445

QUESTION 36 Which method will filter routes between EIGRP neighbors within the same autonomous system?

- A. distribute-list
- B. policy-based routing
- C. leak-map
- D. route tagging

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 37 An infrastructure team is concerned about the shared memory utilization of a device, and for this reason, they need to monitor the device state. Which solution limits impact on the device and provides the required data?

- A. IPFIX
- B. static telemetry
- C. on-change subscription
- D. periodic subscription

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 38

What are two valid scaling techniques when an EIGRP network is designed that consists of more than 1000 routers? (Choose two.)

- A. Use structured hierarchical topology with route summarization
- B. Used sub-second timers
- C. Use the **distribute-list** command to filter routes
- D. Modify delay parameters on the links
- E. Implement multiple EIGRP autonomous systems

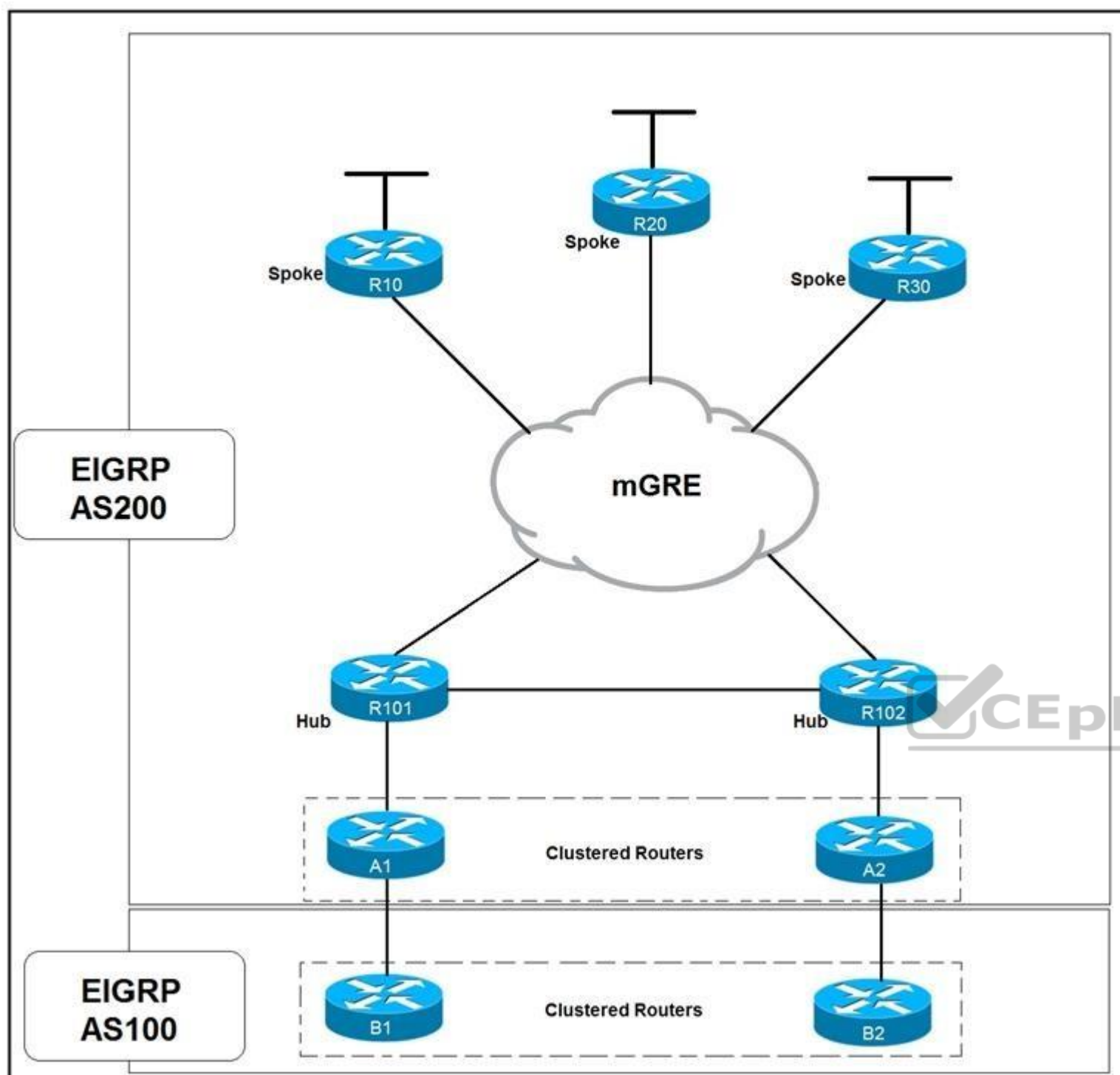
Correct Answer: AE

Section: (none)

Explanation

Explanation/Reference:

QUESTION 39



Refer to the exhibit. Which solution decreases the EIGRP convergence time?

- A. Enable subsecond timers
- B. Increase the hold time value
- C. Increase the dead timer value
- D. Enable stub routing on the spokes

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

QUESTION 40 A router running ISIS is showing high CPU and bandwidth utilization. An engineer discovers that the router is configured as L1/L2 and has L1 and L2 neighbors. Which step optimizes the design to address the issue?

- A. Make this router a DIS for each of the interfaces
- B. Disable the default behavior of advertising the default route on the L1/L2 router
- C. Configure the router to be either L1 or L2
- D. Configure each interface as either L1 or L2 circuit type

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

QUESTION 41 A network engineer must connect two sites across a public network using a secure tunneling technology that supports multicast traffic. Which technology must be chosen?

- A. IPsec
- B. GRE
- C. PPTP
- D. GRE over IPsec

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:



QUESTION 42 Which two best practices must be followed when designing an out-of-band management network? (Choose two.)

- A. Enforce access control
- B. Facilitate network integration
- C. Back up data using the management network
- D. Ensure that the management network is a backup to the data network
- E. Ensure network isolation

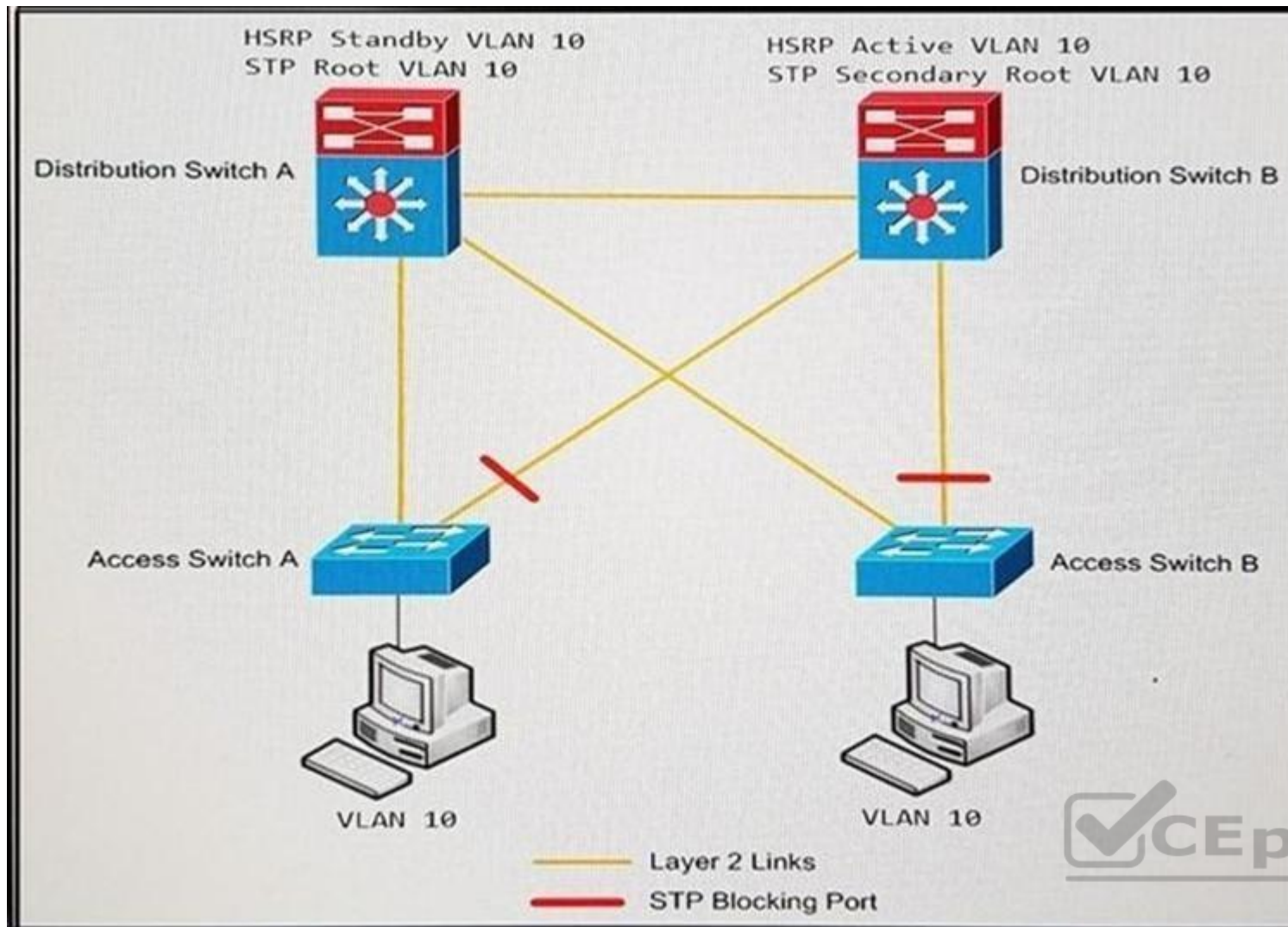
Correct Answer: AE

Section: (none)

Explanation

Explanation/Reference:

QUESTION 43



Refer to the exhibit. An engineer must optimize the traffic flow of the network. Which change provides a more efficient design between the access and the distribution layer?

- A. Add a link between access switch A and access switch B
- B. Reconfigure the distribution switch A to become the HSRP Active
- C. Change the link between distribution switch A and distribution switch B to be a routed link
- D. Create an EtherChannel link between distribution switch A and distribution switch B

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

QUESTION 44 When a first hop redundancy solution is designed, which protocol ensures that load balancing occurs over multiple routers using a single virtual IP address and multiple virtual MAC addresses?

- A. GLBP
- B. IRDP
- C. VRRP
- D. HSRP

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 45 Which two routing protocols allow for unequal cost load balancing?

(Choose two.)

- A. EIGRP
- B. IS-IS
- C. BGP
- D. OSPF
- E. RIPv6

Correct Answer: AC

Section: (none)

Explanation

Explanation/Reference:

QUESTION 46 Which two steps can be taken to improve convergence in an OSPF network?

(Choose two.)

- A. Use Bidirectional Forwarding Detection
- B. Merge all the areas into one backbone area
- C. Tune OSPF parameters
- D. Make all non-backbone areas stub areas
- E. Span the same IP network across multiple areas.

Correct Answer: CD

Section: (none)

Explanation

Explanation/Reference:

QUESTION 47

An engineer is designing an enterprise campus network. The LAN infrastructure consists of switches from multiple vendors, and Spanning Tree must be used as a Layer 2 loop prevention mechanism. All configured VLANs must be grouped in two STP instances. Which standards-based Spanning Tree technology supports this design solution?

- A. MSTP
- B. RSTP
- C. Rapid PVST
- D. STP

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 48 Which control-plane technology allows the same subnet to exist across multiple network locations?

- A. LISP
- B. VXLAN

- C. FabricPath
- D. ISE mobility services

Correct Answer: B

Section: (none)

Explanation

Explanation/Reference:

QUESTION 49 Which two statements describe source trees in a multicast environment?

(Choose two.)

- A. Source trees guarantee the minimum amount of network latency for forwarding multicast traffic
- B. Source trees create an optimal path between the source and the receivers
- C. Source trees use a single common root placed at some chosen point in the network
- D. Source trees can introduce latency in packet delivery
- E. Source trees can create suboptimal paths between the source and the receivers

Correct Answer: AB

Section: (none)

Explanation

Explanation/Reference:

QUESTION 50

A customer with an IPv4 only network topology wants to enable IPv6 connectivity while preserving the IPv4 topology services. The customer plans to migrate IPv4 services to the IPv6 topology, then decommission the IPv4 topology. Which topology supports these requirements?

- A. dual stack
- B. 6VPE
- C. 6to4
- D. NAT64

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 51 A company with multiple service providers wants to speed up BGP convergence time in the event a failure occurs with their primary link. Which approach achieves this goal and does not impact router CPU utilization?

- A. Utilize BFD and tune the multiplier to 50
- B. Lower the BGP hello interval
- C. Decrease the BGP keepalive timer
- D. Utilize BFD and keep the default BGP timers

Correct Answer: C

Section: (none)

Explanation

Explanation/Reference:

QUESTION 52

An engineer is working with NETCONF and Cisco NX-OS based devices. The engineer needs a YANG model that supports a specific feature relevant only to Cisco NX-OS. Which model must the engineer choose?

- A. Native
- B. IEEE
- C. OpenConfig
- D. IETF

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

QUESTION 53 What is the purpose of an edge node in an SD-Access network fabric?

- A. Edge nodes identify and authenticate endpoints and register endpoint information with control plane nodes.
- B. Edge nodes track endpoint IDs to location mappings, along with IPv4, IPv6, or MAC addresses.
- C. Edge nodes are the gateway between the fabric domain and network outside of the fabric.
- D. Edge nodes resolve lookup requests from edge and border nodes to locate destination endpoint IDs.

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 54 An engineer is working with NETCONF and Cisco NX-OS based devices. The engineer needs a YANG model that supports a specific feature relevant only to Cisco NX-OS. Which model must the engineer choose?

- A. Native
- B. IEEE
- C. OpenConfig
- D. IETF

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

QUESTION 55 Which OSPF area blocks LSA Type 3, 4 and 5, but allows a default summary route?

- A. normal
- B. stub
- C. NSSA
- D. totally stubby

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

QUESTION 56 When designing interdomain multicast, which two protocols are deployed to achieve communication between multicast sources and receivers?
(Choose two.)

- A. IGMPv2
- B. BIDIR-PIM
- C. MP-BGP
- D. MSDP
- E. MLD

Correct Answer: CD

Section: (none)

Explanation

Explanation/Reference:

QUESTION 57

A branch office has a primary L3VPN MPLS connection back to the main office and an IPSEC VPN tunnel that serves as backup. Which design ensures that data is sent over the backup connection only if the primary MPLS circuit is down?

- A. Use EIGRP to establish a neighbor relationship with the main office via L3VPN MPLS and the IPSEC VPN tunnel.
- B. Use BGP with the multipath feature enabled to force traffic via the primary path when available.
- C. Use static routes tied to an IP SLA to prefer the primary path while a floating static route points to the backup connection.
- D. Use OSPF with a **passive-interface** command on the backup connection.

Correct Answer: C

Section: (none)

Explanation

Explanation/Reference:



QUESTION 58

Company A recently acquired another company. Users of the newly acquired company must be able to access a server that exists on Company A's network, both companies use overlapping IP address ranges. Which action conserves IP address space and provides access to the server?

- A. Use a single IP address to create overload NAT
- B. Use a single IP address to create a static NAT entry
- C. Build one-to-one NAT translation for every user that needs access
- D. Re-IP overlapping address space in the acquired company

Correct Answer: A

Section: (none)

Explanation

Explanation/Reference:

QUESTION 59 In an SD-WAN architecture, which methods are used to bootstrap a vEdge router?

- A. DHCP options or manual configuration
- B. vManage or DNS records
- C. ZTP or manual configuration
- D. DNS records or DHCP options

Correct Answer: C

Section: (none)

Explanation

Explanation/Reference:

QUESTION 60

An engineer must propose a QoS architecture model that allows an application to inform the network of its traffic profile and to request a particular type of service to support its bandwidth and delay requirements. The application requires consistent and dedicated bandwidth end to end. Which QoS architecture model meets these requirements?

- A. DiffServ
- B. LLQ
- C. WRED
- D. IntServ

Correct Answer: D

Section: (none)

Explanation

Explanation/Reference:

