

**300-320.236q**

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**Cisco 300-320**

**Designing Cisco Network Service Architectures**



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**Exam A****QUESTION 1**

Which route summarization most efficiently reduces perceived network complexity that is composed of subnetworks ranging from 172.16.20.0/24 to 172.16.36.0/24?

- A. 172.16.8.0/21
- B. 172.16.8.0/19
- C. 172.16.20.0/20
- D. 172.16.0.0/18
- E. 172.16.20.0/19

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 2**

What is the recommended subnet between two sites that have a point-to-point connection to conserve IP addresses?

- A. 255.255.255.0
- B. 255.255.252.0
- C. 255.255.255.252
- D. 255.255.255.240

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 3**

In which OSI layer does IS-IS operate?

- A. Layer 1
- B. Layer 2

- C. Layer 3
- D. Layer 4

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 4**

Which algorithm does IS-IS use to determine the shortest path through a network?

- A. Bellman-Ford routing algorithm
- B. Johnson's algorithm
- C. Dijkstra's algorithm
- D. Floyd-Warshall algorithm

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 5**

Which unique EIGRP feature allows for faster Layer 3 convergence?

- A. fast EIGRP timers
- B. feasible successors
- C. hybrid routing protocol
- D. Cisco proprietary protocol

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 6**

EIGRP uses which algorithm to build a routing table?

- A. Dijkstra's algorithm
- B. Floyd-Warshall algorithm
- C. Diffusing Update Algorithm
- D. Johnson's algorithm

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 7**

What is the maximum number of routers that each OSPF area (including the backbone) should contain?

- A. 30
- B. 10
- C. 50
- D. 100

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 8**

What is the maximum number of neighbors that a router should have in an OSPF area?

- A. 5
- B. 30
- C. 60
- D. 99

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 9

```
R1(config)# router ospf 2  
  
R1(config)# network 10.10.10.0 0.0.0.255 area 1  
R1(config)# network 20.20.20.0 0.0.0.255 area 2  
  
R1(config)# router-id 15.15.15.15  
R2(config)# router ospf 10  
  
R2(config)# network 10.10.10.0 0.0.0.255 area 1  
R2(config)# network 20.20.20.0 0.0.0.255 area 2  
R2(config)# router-id 16.16.16.16
```

Refer to the exhibit. Based on the configuration, why are routers R1 and R2 not exchanging OSPF routes?

- A. The OSPF process numbers are different.
- B. There is no backbone area configured.
- C. The router IDs are different.
- D. OSPF is not enabled on the interfaces.

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 10

An engineer notices that many BGP peers utilize the same configuration parameters. What can the engineer configure to simplify BGP neighbor statements and generate more efficient BGP peer updates?

- A. peer groups
- B. policy templates
- C. session templates
- D. peer address families

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 11**

What is the correct state between two BGP peers that are neighbors?

- A. active
- B. operational
- C. established
- D. up

**Correct Answer:** C

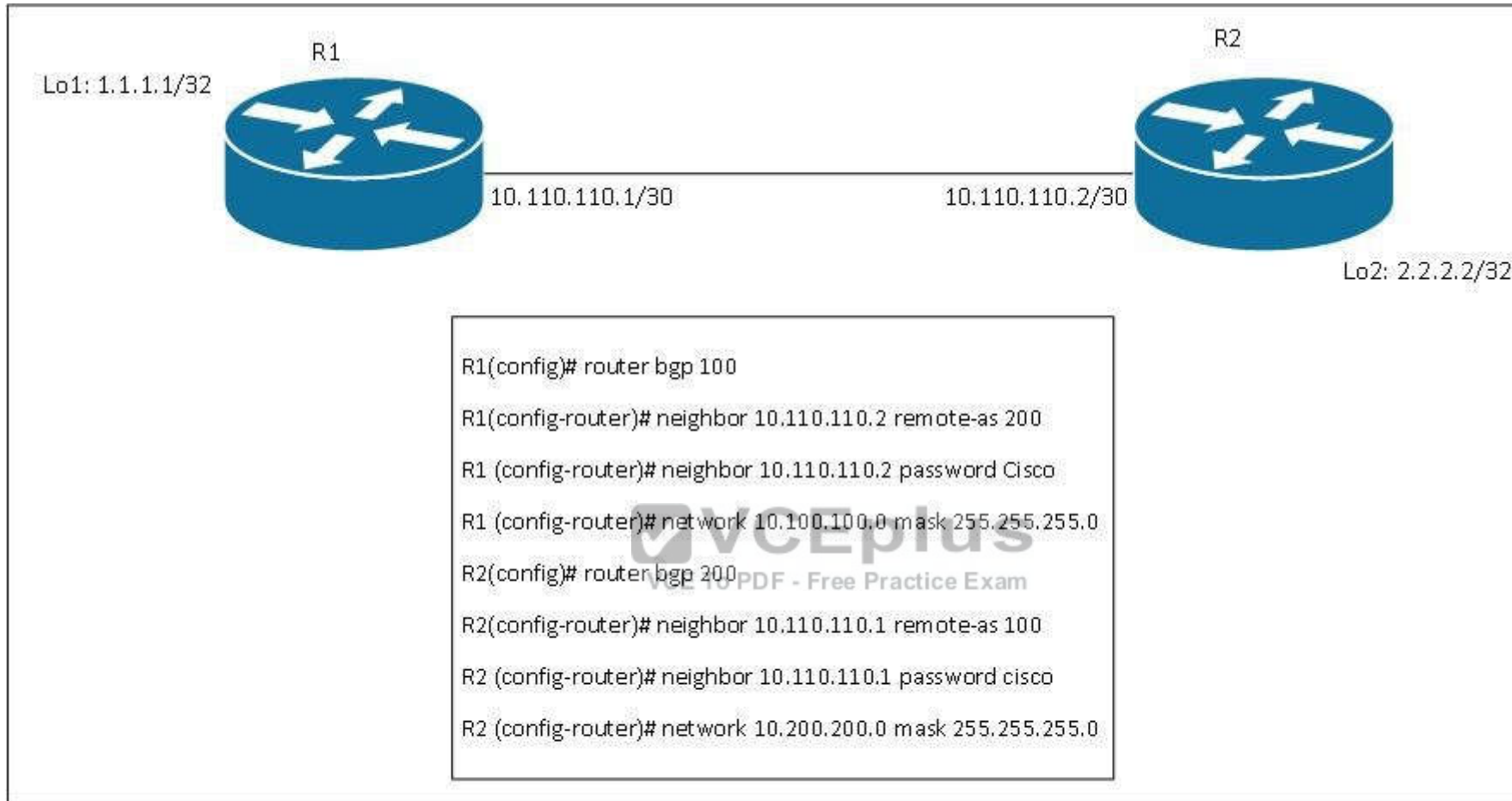
**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 12**

Refer to the exhibit. A network engineer manually reconfigures the BGP configuration on newly upgraded router R1. However, the BGP neighbor relationship does not come up with the directly connected neighbor router. What is causing the failure of the BGP neighbor relationship between routers R1 and R2?



- A. An incorrect neighbor IP address for router R2 is configured on router R1.
- B. An incorrect neighbor AS number is configured on router R1 for router R2.
- C. The wrong BGP authentication password is configured on router R1.
- D. Router R1 must configure the R2 loopback address as the neighbor IP address.

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 13**

Which option is a primary requirement for the deployment of an IPv6-enabled network via the native method (dual-stack model) within the enterprise campus environment?

- A. hardware-based switching support for IPv6 forwarding on all campus switches
- B. restriction of IPv6-enabled devices to the core layer
- C. manual implementation of tunneling between IPv6-incompatible devices in an IPv4-over-IPv6 tunnel
- D. disabling of multicast in the distribution layer prior to implementation of IPv6

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**



#### **QUESTION 14**

Which multicast address must be available for FHRP advertisements in a multivendor environment?

- A. 224.0.0.9
- B. 224.0.0.18
- C. 224.0.0.102
- D. 224.0.0.2

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 15**

Which feature must be configured for the VRRP-enabled router to regain the master VRRP status upon recovery from a failure?

- A. priority
- B. authentication
- C. pre-emption
- D. Stateful Switchover

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 16**

Which protocol should be configured if a network administrator wants to configure multiple physical gateways to participate simultaneously in packet forwarding?

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



**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 17**

Which Nexus feature enables you to support server connectivity with one topology and address requirement for both high availability and high bandwidth?

- A. vPC
- B. vPC+
- C. Stackwise
- D. EvPC

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 18**

Which technology can block interfaces and provide a loop-free topology?

- A. STP
- B. VSS
- C. VLAN
- D. vPC

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**



**QUESTION 19**

Which technology allows network managers to centrally manage the VLAN database?

- A. VTP
- B. VLAN
- C. VSS
- D. vPC

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 20**

Which technology allows multiple instances of a routing table to coexist on the same router simultaneously?

- A. VRF
- B. Cisco virtual router
- C. instanced virtual router
- D. IS-IS

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 21**

Which first-hop redundancy protocol that was designed by Cisco allows packet load sharing among groups of redundant routers?

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

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 22**

Which routing protocol provides the fastest convergence and greatest flexibility within a campus environment?

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

**Correct Answer:** D

**Section:** (none)

**Explanation****Explanation/Reference:****QUESTION 23**

A network engineer wants to connect two sites via a WAN technology and to securely pass multicast traffic over this WAN technology. Which WAN technology should be configured?

- A. IPsec
- B. GRE
- C. pure MPLS
- D. GRE over IPsec

**Correct Answer:** D

**Section:** (none)

**Explanation****Explanation/Reference:****QUESTION 24**

A network manager wants to securely connect a new remote site to the existing headquarters site using a VPN technology that meets security requirements. Which VPN technology should be used?

- A. GRE
- B. IPsec
- C. remote-access VPN
- D. L2TP VPN

**Correct Answer:** B

**Section:** (none)

**Explanation****Explanation/Reference:****QUESTION 25**

Which VPN technology is tunnel-less?

- A. GET VPN
- B. DMVPN
- C. MPLS
- D. IPsec VPN

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 26**

Which type of connectivity is required for VPLS?

- A. full mesh
- B. partial mesh
- C. star
- D. bus
- E. ring

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 27**

Which protocol should be run on the LAN side of two edge routers (that are terminating primary and backup WAN circuits) to provide quick failover in case of primary WAN circuit failure?

- A. VTP
- B. STP
- C. VRRP
- D. RIP

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 28**

Which Cisco feature can be run on a Cisco router that terminates a WAN connection, to gather and provide WAN circuit information that helps switchover to dynamically back up the WAN circuit?

- A. Cisco Express Forwarding
- B. IP SLA
- C. passive interface
- D. traffic shaping

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**



**QUESTION 29**

Which protocol is best when there are circuit connections with two different ISPs in a multihoming scenario?

- A. VRRP
- B. BGP
- C. IPsec
- D. SSL

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 30**

Private lines make use of which connection type based on cell switching?

- A. ATM
- B. ISP MPLS VPN
- C. VTI
- D. VPLS

**Correct Answer:** A

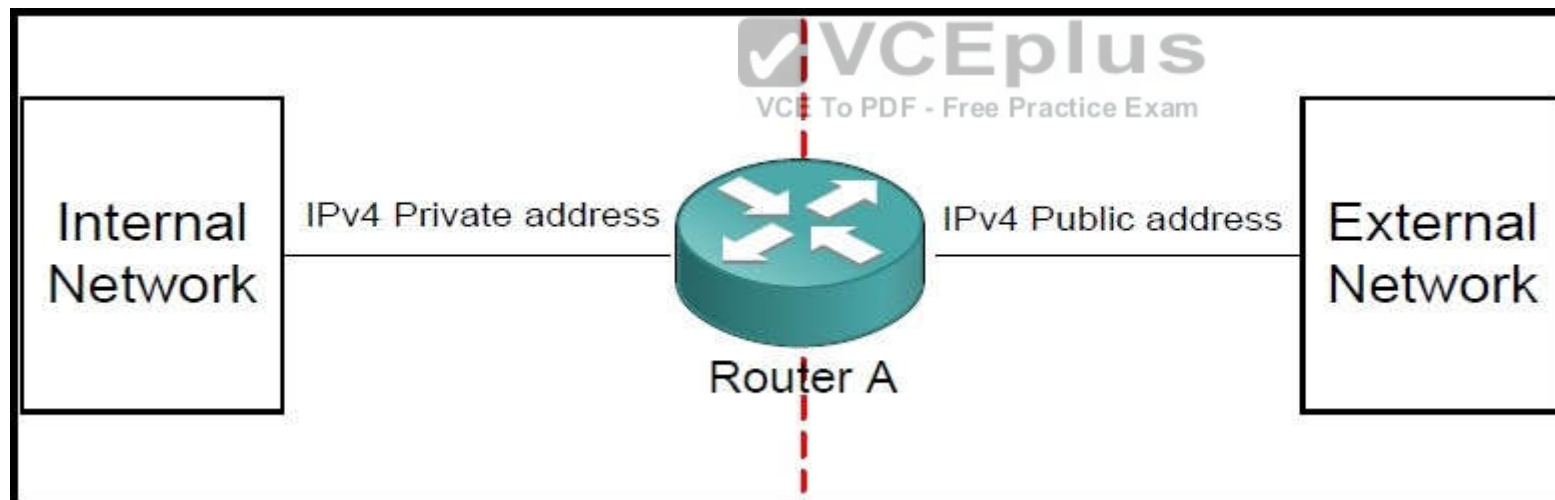
**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 31**

Refer to the exhibit. Which functionality must be enabled on router A to connect two networks for translating private addresses into "legal" public addresses on a one-for-one basis?



- A. PAT
- B. NAT
- C. VLAN
- D. GARP

E. PPP

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

### QUESTION 32

Which technology fulfills these requirements?

- Utilize a connection that must support a range of traffic, voice, video, and data.
- This traffic must also support transmission via a fixed blank 53-byte cell.

A. PPP

B. Frame Relay

C. ATM

D. MPLS

E. X.25



**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

### QUESTION 33

Which option is used as a top-of-rack device that is managed by its parent device, providing ease of management?

A. Cisco Nexus 2000

B. Cisco Nexus 5000

C. Cisco Nexus 7000

D. Cisco Nexus 9000

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 34**

Which option provides software modularity in Cisco NX-OS software in the data center design?

- A. The ip routing command enables all of the features in the Cisco NX-OS.
- B. All of the features are enabled by default in the Cisco NX-OS.
- C. Individual features must be manually enabled to start the process.
- D. The Cisco NX-OS has a management VRF that is enabled by default.

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 35**

What is an advantage of using the vPC feature in a data center environment?

- A. VSS is a requirement.
- B. Multiple instances of control plane are formed.
- C. The control plane and management plane remain separate.
- D. Cisco FabricPath technology does not have to be configured.

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 36**

Which option is a benefit of the vPC+ feature?

- A. Cisco FabricPath is not required in the network domain.
- B. This feature provides fault domain separation.

- C. Nonfabric devices, such as a server or a classic Ethernet switch, can be connected to two fabric switches that are configured with vPC.
- D. The control plane and management plane are combined into one logical plane.

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

### QUESTION 37

A network administrator wants to provide high availability in a data center environment by making sure that there is no reconvergence of Layer 2 and Layer 3 protocols when there is a Layer 3 switch failure. Which Cisco Nexus feature fulfills this purpose?

- A. ISSU
- B. VSS
- C. vPC
- D. MEC

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

### QUESTION 38

Which virtualization technology allows for HSRP protocol to be used in the active/active configuration where both HSRP Layer 3 devices can forward network traffic?

- A. OTV
- B. VSS
- C. vPC
- D. VDC

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 39**

Which technology extends Layer 2 LANs over any network that supports IP?

- A. OTV
- B. VSS
- C. vPC
- D. VLAN

**Correct Answer: A**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 40**

What is the purpose of an OTV edge device?

- A. connect to other data centers
- B. connect to the access layer
- C. connect to the end users
- D. connect to mobile devices

**Correct Answer: A**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 41**

Which feature can be used in the Cisco Nexus 7000 to create a snapshot of the current configuration?

- A. Cisco FabricPath
- B. HSRP
- C. Rollback

D. vPC

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 42**

A company has hired an entry-level network administrator for its new data center. The company CIO wants to give the administrator limited access on the newly configured Cisco Nexus 7000. Which feature should be used to allow limited access?

- A. NAC
- B. VDC
- C. RBAC
- D. vPC

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**



#### **QUESTION 43**

Which option prevents the dropping of asymmetrically routed packets in active/active failover paired firewalls?

- A. Nothing can be done to prevent this from happening.
- B. Configure different policies on both firewalls.
- C. Assign similar interfaces on each firewall to the same asymmetric routing group.
- D. Assign similar interfaces on each firewall to a different asymmetric routing group.

**Correct Answer:** C

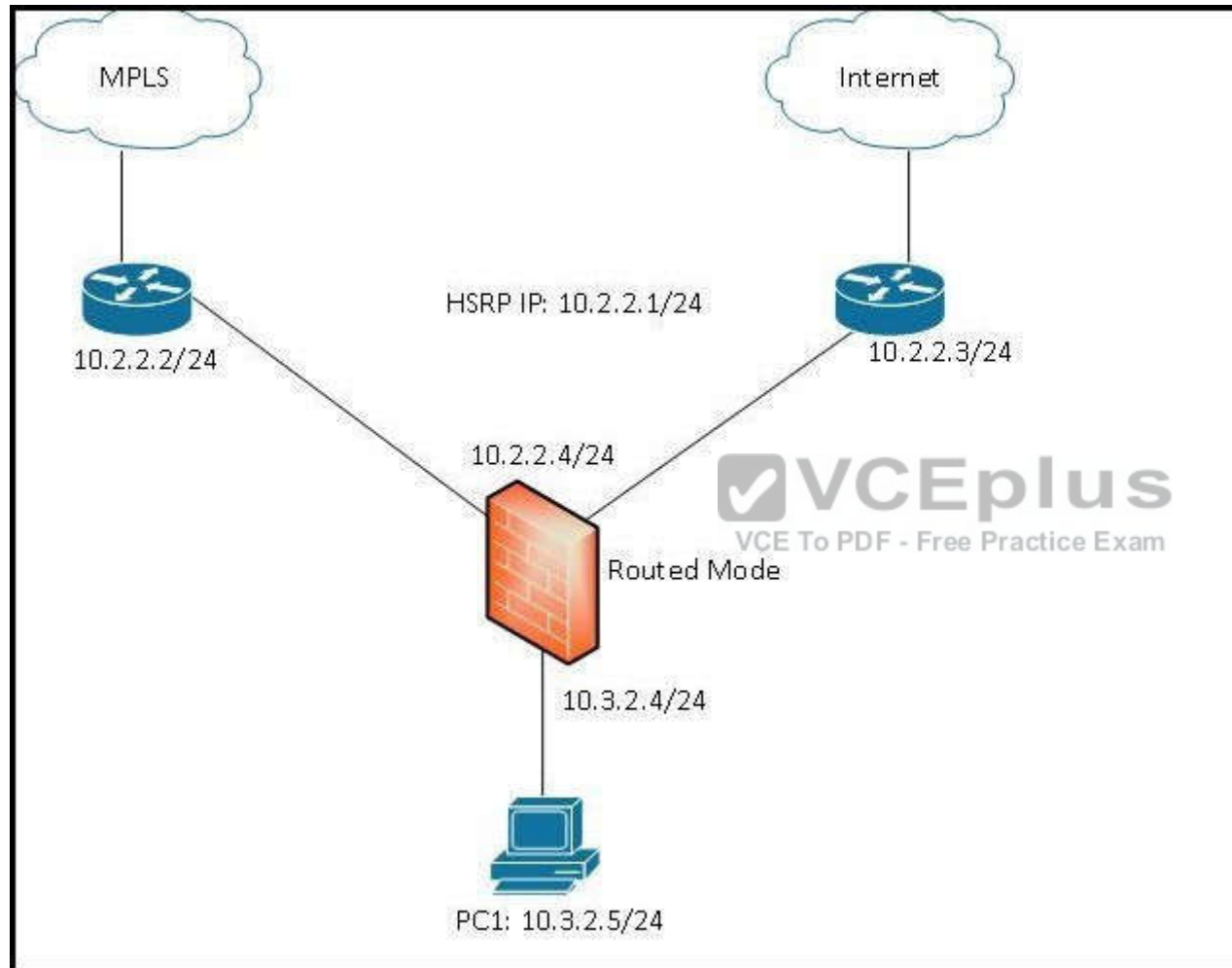
**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 44**

Refer to the exhibit. Which option should be the default gateway for the PC1 that is shown?



- A. 10.3.2.4
- B. 10.2.2.2
- C. 10.2.2.1

D. 10.2.2.3

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 45**

The network engineering team is interested in deploying NAC within the enterprise network to enhance security. What deployment model should be used if the team requests that the NAC be logically inline with clients?

- A. Layer 2 in-band
- B. Layer 2 out-of-band
- C. Layer 3 in-band
- D. Layer 3 out-of-band

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**



#### **QUESTION 46**

Which authentication framework is used in wireless networks and point-to-point connections?

- A. EAP
- B. L2TP
- C. TKIP
- D. PPP

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 47**

What is one reason to implement Control Plane Policing?

- A. allow OSPF routing protocol to advertise routes
- B. protect the network device route processor from getting overloaded by rate limiting the incoming control plane packets
- C. allow network devices to generate and receive packets
- D. protect the data plane packets

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 48**

Port security supports which type of port?

- A. SPAN destination port
- B. EtherChannel port-channel port
- C. nonnegotiating trunk port
- D. DTP-enabled trunk port

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 49**

Which protocol is required for end-to-end signaling in an IntServ QoS architecture?

- A. RSVP
- B. DSCP
- C. ToS
- D. LLQ

E. DiffServ

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 50**

Which QoS architecture provides scalability of implementation?

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

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**



#### **QUESTION 51**

Which architecture provides a way to deliver end-to-end QoS as required by real-time voice and video business applications?

- A. IntServ
- B. DiffServ
- C. LLQ
- D. ToS
- E. DSCP

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 52**

CoS is applied for Layer 2 markings in an Ethernet environment. Which protocol must be configured on the Layer 2 switch port for CoS to work?

- A. MPLS
- B. IEEE 802.1W
- C. IEEE 802.1Q
- D. IEEE 802.1S

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 53**

Which protocol is used in an in-band network and why?

- A. UDP, because it is connectionless
- B. SSH, because the username and password are encrypted
- C. Telnet, because the username and password are sent in clear
- D. MSDP, because it uses TCP as its transport protocol

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 54**

What is an advantage of having an out-of-band management?

- A. It is less expensive to have an out-of-band management.
- B. Network devices can still be managed, even in case of network outage.
- C. There is no separation between the production network and the management network.
- D. SSH protocol must be used to manage network devices.

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 55**

The direction of the flow of multicast traffic is based on which protocol?

- A. PIM
- B. IGMP
- C. underlying IGP
- D. MSDP

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**



**QUESTION 56**

Which option can be implemented to manipulate the election of PIM DR to force multicast traffic to a certain path?

- A. Assign a lower PIM DR priority to the PIM DR interface.
- B. Assign a lower IP address to the PIM DR interface.
- C. Assign a higher PIM DR priority to the PIM DR interface.
- D. Increase the cost on the PIM DR interface.

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 57**

What network technology provides Layer 2 high availability between the access and distribution layers?

- A. HSRP
- B. MEC
- C. EIGRP
- D. GLBP

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 58**

On which two types of links should routing protocol peerings be established according to best practice? (Choose two.)

- A. distribution links
- B. end user links
- C. transit links
- D. core links



**Correct Answer:** CD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 59**

A network engineer has implemented a looped triangle switch block design. What element must be included in the design?

- A. first hop redundancy protocol
- B. Layer 2 links between access switches
- C. single uplinks between access and distribution switches
- D. VLANs that span access switches
- E. Layer 3 links between distribution switches

**Correct Answer:** A

**Section: (none)**

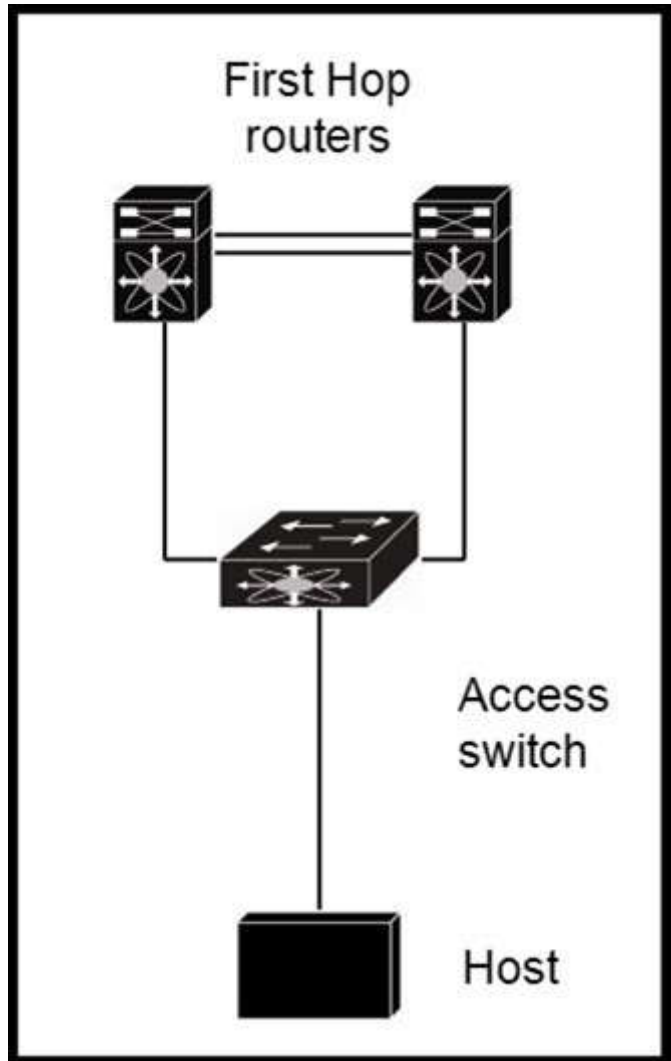
**Explanation**

**Explanation/Reference:**

**QUESTION 60**

Refer to the exhibit. Which two features can enable high availability for first-hop Layer 3 redundancy? (Choose two.)





- A. VPC
- B. IGMP V2
- C. VRRP
- D. PIM

E. HSRP

**Correct Answer:** CE

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 61**

To which network layer should Cisco Express Forwarding be tuned to support load balancing and to make more informed forwarding decisions?

- A. Layer 1
- B. Layer 2
- C. Layer 3
- D. Layer 4
- E. Layer 5
- F. Layer 6
- G. Layer 7

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 62**

A Layer 2 switch in the network has recently started broadcasting traffic out of every port and is impacting network performance. The engineering department determines that a MAC overflow attack is the cause. Which two features can protect and mitigate the damage of the attacks? (Choose two.)

- A. Storm Control
- B. Port Security
- C. SPAN
- D. BPDU Filters
- E. IP Source Guard
- F. VACLs

**Correct Answer:** AB

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 63**

An HSRP design requirement states that preemption must be enabled for the active switch, which is a Cisco 4507R. Assume a boot time of 300 seconds. Which setting of the preemption delay timer minimizes the loss of traffic?

- A. 50 seconds
- B. 100 seconds
- C. 150 seconds
- D. 200 seconds

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**



#### **QUESTION 64**

What is the next action taken by the Cisco NAC Appliance after it identifies a vulnerability on a client device?

- A. denies the client network resource access
- B. repairs the effected devices
- C. generates a Syslog message
- D. permits the client but limits to guest access

**Correct Answer:** B

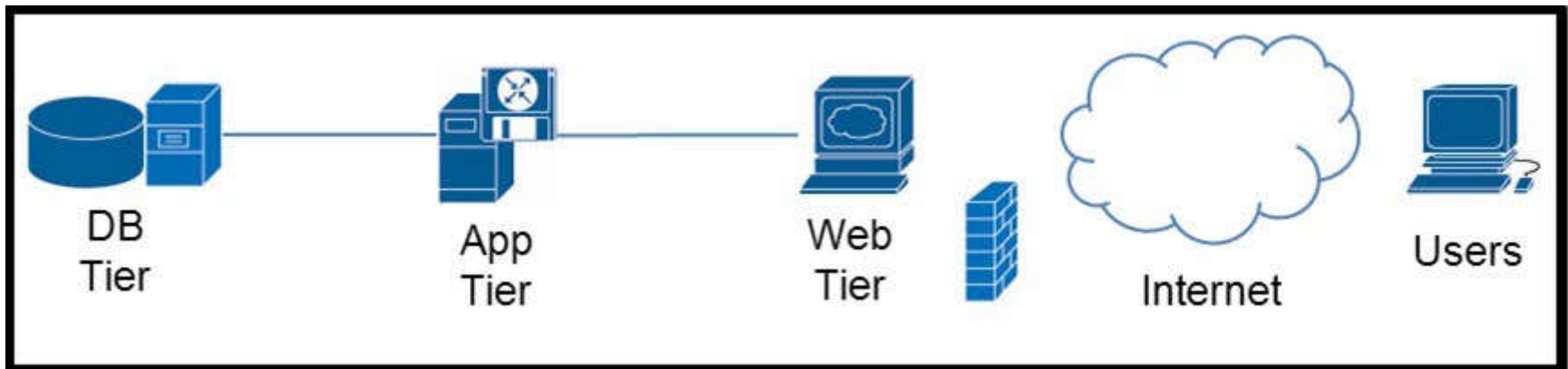
**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 65**

Refer to the exhibit. A customer requires a web application implementation, but the web server has communication only to the application server and users, and the database server has communication only to the application server. What firewall design is the best fit for this scenario?



- A. transparent mode with the servers on the same subnet
- B. routed mode with three security zones
- C. transparent mode with three security zones
- D. routed mode with two security zones

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 66

An organization is designing the IP allocation of a new site. It currently has 12 separate IP segments. Each segment must be /24, accommodate 25% of growth, and be easily summarized.

Which summarized IP block can be subnetted to meet these requirements?

- A. /18
- B. /19
- C. /20
- D. /21

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 67**

Summary address blocks can be used to support which network application?

- A. QoS
- B. IPsec tunneling
- C. Cisco TrustSec
- D. NAT
- E. DiffServ

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**



**QUESTION 68**

A network design engineer has been asked to reduce the size of the SPT on an IS-IS broadcast network. Which option should the engineer recommend to accomplish this task?

- A. Configure the links as point-to-multipoint.
- B. Configure QoS in all links.
- C. Configure a new NET address.
- D. Configure the links as point-to-point.

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 69**

What are three primary components in IS-IS fast convergence? (Choose three.)

- A. event propagation
- B. LSP flooding
- C. fast hellos
- D. matching MTUs
- E. updating RIB and FIB
- F. SPF calculation

**Correct Answer:** AEF

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 70**

A campus network utilizes EIGRP to connect to several remote branch offices.

Which configuration should be established on all branch routers to improve routing scalability and performance?

- A. Configure authentication between the campus and branch offices.
- B. Enable stub routing on all branch routers.
- C. Adjust EIGRP k-values to utilize delay.
- D. Utilize offset lists to direct traffic more efficiently.

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 71**

Which two design principles should be followed to scale EIGRP properly? (Choose two.)

- A. Ensure that the network design follows a structured hierarchical topology.

- B. Utilize route summarization on edge devices.
- C. Implement multiple autonomous systems, regardless of the size of the network.
- D. Tune EIGRP delay metric on all core devices.
- E. Configure offset lists on the network border.

**Correct Answer:** AB

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 72**

Which action can be taken on a multiaccess segment with OSPF speakers to reduce the performance impact during widespread convergence events?

- A. Separate the network into multiple areas for each new multiaccess segment.
- B. Enable LSA throttling in the core to slow link state advertisement updates during times of network instability.
- C. Ensure that the elected DR or BDR router can support high-volume convergence events.
- D. Verify that fewer than 50 OSPF speakers are on the segment.

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 73**

An engineer is attempting to improve OSPF network performance and discovers that the entire SPT recomputes whenever a type 1 or type 2 LSA is received within an area.

Which action can optimize SPT operations?

- A. Tune LSA throttling thresholds.
- B. Enable incremental SPF.
- C. Configure totally stubby areas throughout the domain.
- D. Summarize networks on all ABRs.

**Correct Answer:** B

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 74**

Which option does best practice dictate for the maximum number of areas that an OSPF router should belong to for optimal performance?

- A. 1
- B. 2
- C. 3
- D. 4
- E. 5

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**



**QUESTION 75**

A BGP network is having difficulty scaling with the full mesh peer requirement. What two iBGP alternates can scale BGP appropriately? (Choose two.)

- A. communities
- B. route reflectors
- C. confederations
- D. peer groups
- E. peer templates

**Correct Answer: BC**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 76**

Which command can you enter to inject BGP routes into an IGP?

- A. redistribute bgp
- B. redistribute static
- C. redistribute static subnet
- D. default-information originate

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 77

Which two features can you implement to control which networks are advertised by a BGP router? (Choose two.)

- A. prefix lists
- B. route maps
- C. policy maps
- D. router SNMP statements
- E. crypto maps



**Correct Answer:** AB

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 78

What are two benefits of using 6to4 as an IPv6 transition method? (Choose two.)

- A. 6to4 tunnels allow isolated IPv6 domains to be remotely connected over IPv4 networks.
- B. Manual configuration (scalability) is easier.
- C. Point-to-multipoint automatic tunneling (automatic 6to4) is available.
- D. An infinite number of address spaces are allocated to an IPv6 subnet.
- E. Globally unique IPv4 addresses are not required.

**Correct Answer:** AC

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 79**

Which feature enables the VRRP-enabled router to regain the master VRRP status upon recovery from a failure?

- A. priority
- B. authentication
- C. preemption
- D. stateful switchover

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**



#### **QUESTION 80**

Which protocol should be configured if a network administrator has the following requirements?

- Multiple physical gateways participating simultaneously in packet forwarding.
- All hosts in the VLAN configured with the same default gateway address.

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

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 81**

A network engineer is designing a network that must incorporate seamless failover when a link failure occurs between the core and distribution layer. What two technologies will allow this? (Choose two.)

- A. ECMP
- B. RSTP
- C. MEC
- D. GLBP
- E. HSRP

**Correct Answer:** AC

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 82**

Which network technology provides Layer 2 high availability between the access and distribution layers?

- A. HSRP
- B. MEC
- C. EIGRP
- D. GLBP

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 83**

Which two types of authentication mechanisms can be used by VRRP for security? (Choose two.)

- A. SHA-1
- B. MD5

- C. SHA-256
- D. plaintext authentication
- E. PEAP

**Correct Answer:** BD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 84

A network engineer is designing an access layer that requires all uplinks to be active. Furthermore, VLANs must span across the entire switch block. What design fulfills this requirement?

- A. Layer 2 looped triangle
- B. Layer 2 looped square
- C. Layer 2 loop-free U
- D. Layer 2 loop-free inverted U

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 85

What are two of Cisco's best practices at the access layer to ensure rapid link transitions and VLAN consistency? (Choose two.)

- A. Deploy RPVST
- B. Deploy MSTP
- C. Utilize VTP in server/client mode
- D. Utilize VTP in transparent mode
- E. VLANs span entire network
- F. Portfast applied on distribution uplinks

**Correct Answer:** AD

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 86**

In what situation must spanning-tree be implemented?

- A. when first hop redundancy protocol exists with redundant Layer 2 links between distribution switches
- B. when a VLAN spans access layer switches to support business applications
- C. when trunks need to extend multiple VLANs across access switches
- D. when it is necessary to speed up network convergence in case of link failure

**Correct Answer: A**

**Section: (none)**

**Explanation**

**Explanation/Reference:**



**QUESTION 87**

Which feature supports multiple routing tables with overlapping networks on a single device?

- A. VRF
- B. Metro Ethernet
- C. RSTP
- D. VSS

**Correct Answer: A**

**Section: (none)**

**Explanation**

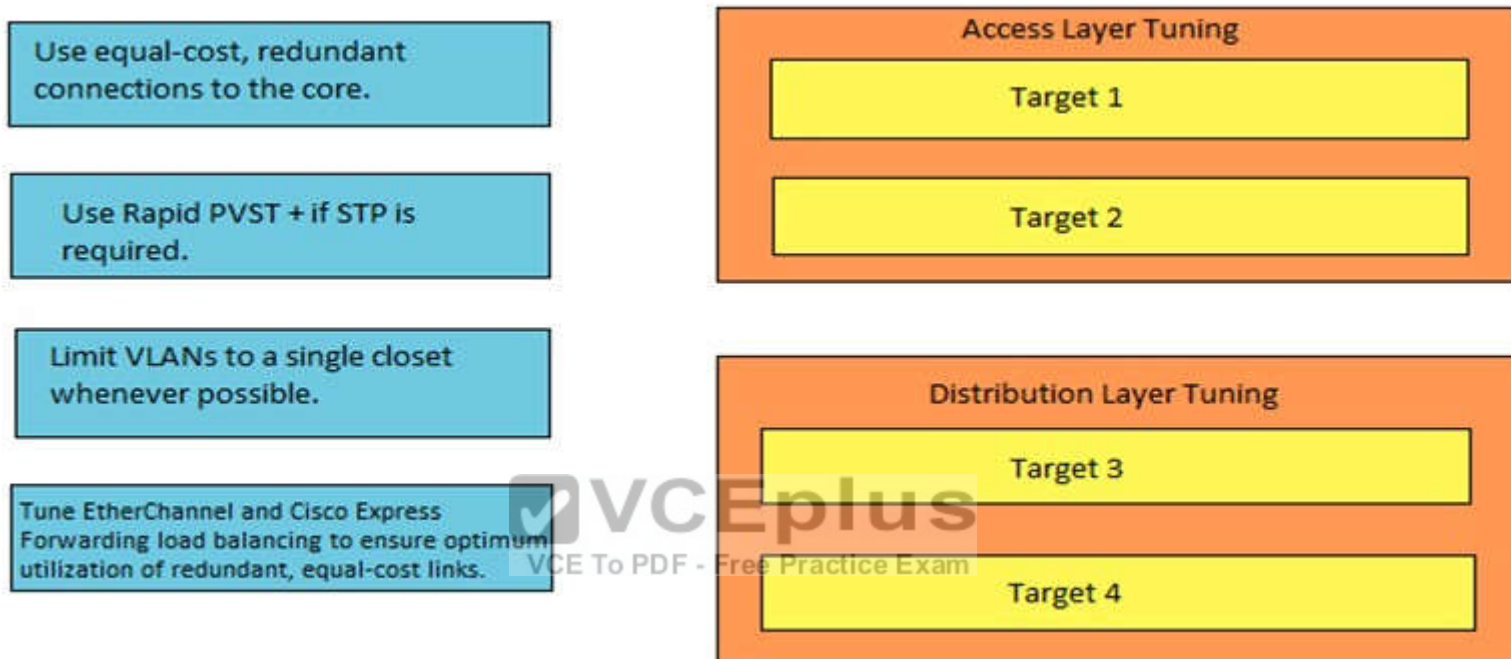
**Explanation/Reference:**

**QUESTION 88**

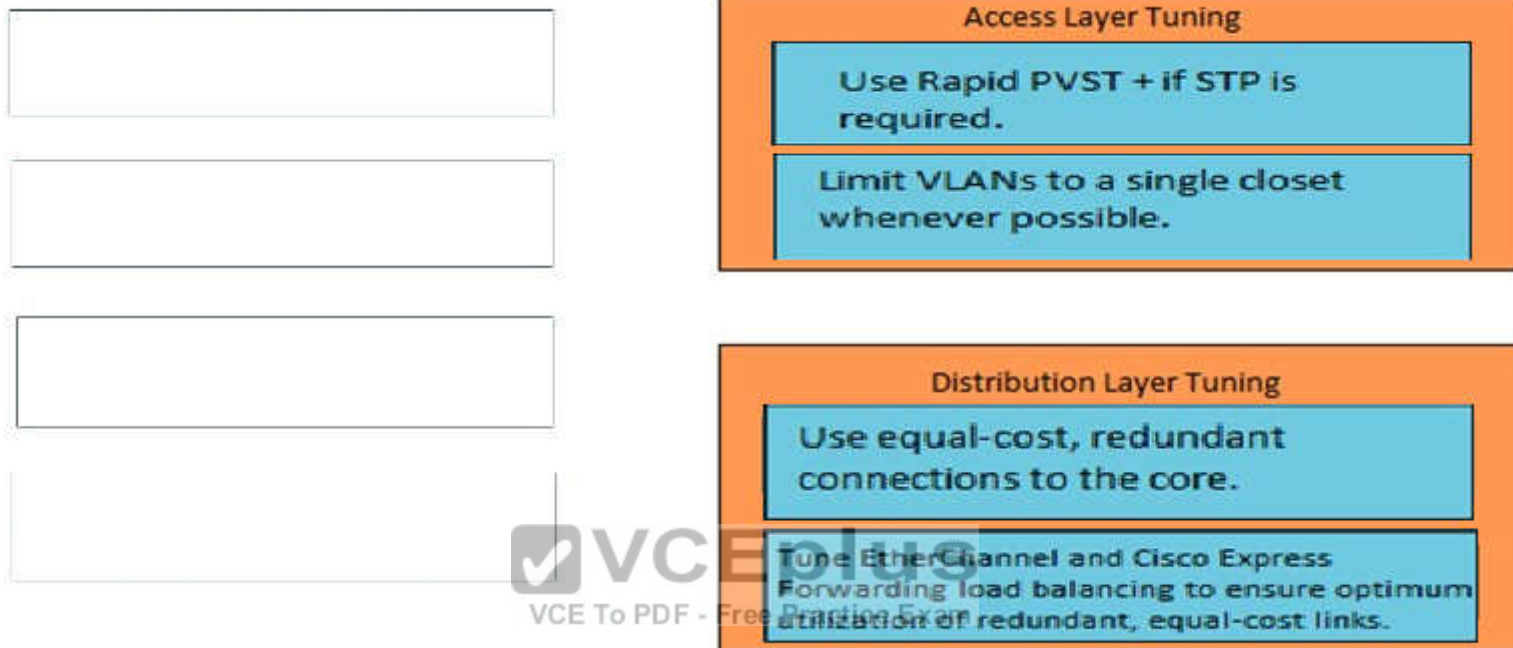
**DRAG DROP**

Drag the task on the left to the appropriate layer category on the right.

Select and Place:



Correct Answer:



**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 89**

Which VPN technology supports dynamic creation of spoke-to-spoke VPN tunnels to provide a scalable design?

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

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 90**

A designer should have which three technologies in the network before configuring MPLS Layer 3 VPNs? (Choose three.)

- A. MPLS
- B. LDP
- C. Cisco Express Forwarding
- D. VSS
- E. vPC
- F. VRRP

**Correct Answer:** ABC

**Section:** (none)

**Explanation**

**Explanation/Reference:**



**QUESTION 91**

Which two WAN technologies support IEEE 802.1Q, site-to-site connectivity, and point-to-point connectivity between two offices? (Choose two.)

- A. Ethernet over MPLS
- B. VPLS
- C. Layer 3 MPLS
- D. DSL
- E. cable

**Correct Answer:** AB

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 92**

Which ISP technology can be implemented as a service when designing a topology to perform extranet connectivity via multitenant segmentation from within a corporate intranet?

- A. Cisco Easy VPN
- B. GRE over IPsec
- C. MPLS
- D. VTI
- E. VPNaaS

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 93**

DRAG DROP

Drag the rule on the left to match the appropriate activity on the right.

**Select and Place:**

Overlapping	Maps a private IP address to a public IP address on a one-to one basis.
Overloading	Maps a private IP address to a public IP address from a pool or group of public IP addresses.
Static NAT	A form od dynamic translation that maps multiple private IP addresses to a single public IP address by utilizing different ports.
Dynamic NAT	The IP address is already in use on another network. The router maintains a lookup table and intercepts and replaces the public IP addresses with unique IP addresses.

**Correct Answer:**

	Static NAT
	Dynamic NAT
	Overloading
	Overlapping

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 94**

Which two technologies provide web and URL filtering and mitigate zero-day malware? (Choose two.)

- A. Cisco CWS
- B. Cisco WSA
- C. Cisco GETVPN
- D. Cisco ESA
- E. NAT/PAT

**Correct Answer: AB**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 95**

What are two advantages of using Cisco FEX devices in the data center design? (Choose two.)

- A. Traffic-forwarding decisions are made by the Cisco FEX device.
- B. Cisco FEX devices must be upgraded when the parent switch is upgraded.
- C. Traffic-forwarding decisions are made by the parent switch, resulting in easier troubleshooting and centralized management.
- D. Cisco FEX devices do not have to be upgraded when the parent switch is upgraded, resulting in cost savings.
- E. Cisco FEX devices can be part of two different VDCs.

**Correct Answer: CD**

**Section: (none)**

**Explanation**

**Explanation/Reference:**



**QUESTION 96**

Which statement about the ToR design model is true?

- A. It can shorten cable runs and simplify rack connectivity.
- B. Each ToR switch must be individually managed.
- C. Multiple ToR switches can be interconnected to provide a loop-free spanning-tree infrastructure.
- D. It can connect servers that are located in separate racks.

**Correct Answer: A**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 97**

What is an advantage of using the Cisco FabricPath feature in a data center environment?

- A. VSS does not have to be configured.
- B. Transparent Interconnection of Lots of Links can be configured simultaneously.
- C. Equal-Cost Multipath can be used to choose the forwarding path.
- D. The control plane and management plane remain separate.

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 98**

What is an advantage of using the Virtual Device Contexts feature in a data center environment?

- A. The same VLAN cannot be configured in separate Virtual Device Contexts.
- B. This feature provides fault domain separation.
- C. Supervisor modules are shared between Virtual Device Contexts.
- D. Fabric modules are shared between Virtual Device Contexts.

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 99**

Which option is correct when using VSS to combine two physical switches into one logical switch?

- A. Both data planes forward traffic simultaneously.
- B. Only one data plane forwards traffic, while the other data plane is on standby.
- C. Both control planes forward traffic simultaneously.
- D. Control planes are combined into one virtual control plane.

**Correct Answer:** D

**Section:** (none)

**Explanation****Explanation/Reference:****QUESTION 100**

Which statement about vPC technology is true?

- A. It allows a device to connect to two separate upstream devices as if they were a single device.
- B. It provides the ability to pair two servers in the data center.
- C. It promotes better STP designs in the switching infrastructure.
- D. It supports IEEE 802.1Q only.

**Correct Answer:** A

**Section:** (none)

**Explanation****Explanation/Reference:****QUESTION 101**

Which statement best describes Cisco OTV internal interfaces?

- A. They are Layer 2 interfaces that are configured as either access or trunk interfaces on the switch.
- B. They are interfaces that perform Layer 3 forwarding with aggregation switches.
- C. They are the interfaces that connect to the ISP.
- D. They are tunnel interfaces that are configured with GRE encapsulation.

**Correct Answer:** A

**Section:** (none)

**Explanation****Explanation/Reference:****QUESTION 102**

Which mechanism is enabled by default in the OTV technology to conserve bandwidth?

- A. Automatic unicast flooding is suppressed over the OTV link.

- B. BPDUs are allowed to traverse the OTV link.
- C. Control plane traffic is prevented from traversing the OTV link.
- D. Data plane traffic is prevented from traversing the OTV link.

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 103**

Which two features provide resiliency in a data center? (Choose two.)

- A. Cisco FabricPath
- B. VTP
- C. encryption
- D. vPC
- E. VRF

**Correct Answer:** AD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 104**

When a Cisco ASA adaptive security appliance is configured for active/standby failover, which MAC address is used for the active unit?

- A. the MAC address of the primary unit
- B. the MAC address of the secondary unit
- C. the virtual MAC address
- D. the standby MAC address

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 105**

Which three authentication services are supported by Cisco NAC Appliance? (Choose three.)

- A. RADIUS
- B. LDAP
- C. Kerberos
- D. TACACS+
- E. local
- F. SNMP

**Correct Answer:** ABC

**Section:** (none)

**Explanation**

**Explanation/Reference:**



**QUESTION 106**

Which security feature can help prevent spoofed packets on the network?

- A. uRPF
- B. ACLs
- C. DAI
- D. DHCP spoofing

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 107**

Which QoS mechanism uses RSVP?

- A. IntServ
- B. DiffServ
- C. CoS
- D. ToS

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 108**

Which QoS mechanism uses PHBs?

- A. DiffServ
- B. IntServ
- C. CoS
- D. ToS

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 109**

Voice and video-conferencing applications that support multistreaming use which protocol?

- A. TCP
- B. RTP
- C. Multipath TCP
- D. SCTP

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 110**

What are the three configuration requirements for implementing Modular QoS on a router? (Choose three.)

- A. CoS
- B. class map
- C. precedence
- D. service policy
- E. priority
- F. policy map

**Correct Answer:** BDF

**Section:** (none)

**Explanation**

**Explanation/Reference:**



**QUESTION 111**

Why is QoS important for in-band management?

- A. It supports remote management when traffic volume is high.
- B. It supports proper routing.
- C. It supports network security against DoS attacks and worm outbreaks.
- D. It supports network redundancy.

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 112**

Which option is an advantage of using PIM sparse mode instead of PIM dense mode?

- A. No RP is required.
- B. There is reduced congestion in the network.
- C. IGMP is not required.
- D. It floods all multicast traffic throughout the network.

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

### QUESTION 113

What are the two methods of ensuring that the RPF check passes? (Choose two.)

- A. implementing static mroutes
- B. implementing OSPF routing protocol
- C. implementing MBGP
- D. disabling the interface of the router back to the multicast source
- E. disabling BGP routing protocol

**Correct Answer:** AC

**Section:** (none)

**Explanation**

**Explanation/Reference:**

### QUESTION 114

In which multicast configuration is MSDP most useful?

- A. interdomain
- B. intradomain
- C. data center
- D. campus

**Correct Answer:** A

**Section:** (none)

**Explanation****Explanation/Reference:****QUESTION 115**

A network design team is experiencing sustained congestion on access and distribution uplinks. QoS has already been implemented and optimized, and it is no longer effective in ensuring optimal network performance.

Which two actions can improve network performance? (Choose two.)

- A. Reconfigure QoS based on the IntServ model.
- B. Configure selective packet discard to drop noncritical network traffic.
- C. Implement higher-speed uplink interfaces.
- D. Bundle additional uplinks into logical EtherChannels.
- E. Utilize random early detection to manage queues.

**Correct Answer:** CD

**Section:** (none)

**Explanation****Explanation/Reference:****QUESTION 116**

What two features are inherent advantages of MPLS VPN services? (Choose two.)

- A. service providers can provide additional services
- B. virtual private networks segment traffic and ensure privacy
- C. easier to troubleshoot than Layer 2 WAN technologies
- D. faster data transfer speeds at lower costs
- E. functions without Cisco Express Forwarding

**Correct Answer:** AB

**Section:** (none)

**Explanation****Explanation/Reference:**

**QUESTION 117**

A VPN solution requires bulk traffic encryption, low OpEx to add new sites, and the ability to accommodate dynamic tunnels between branch locations. What VPN solution can fulfill these requirements?

- A. GETVPN
- B. SSL VPN
- C. Easy VPN
- D. DMVPN

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 118**

A company requires redundancy for its multihomed BGP external connections. What two features can be configured on the WAN routers to automate failover for both outbound and inbound traffic? (Choose two.)

- A. AS path prepending
- B. local preference
- C. floating static route
- D. HSRP
- E. MED
- F. weight

**Correct Answer:** AD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 119**

Which two physical components can enable high availability on a Cisco 6500 device? (Choose two.)

- A. dual supervisor modules

- B. bundled Ethernet Interconnects
- C. line modules with DFCs
- D. redundant power supplies
- E. VSS interlink cables

**Correct Answer:** AD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 120

Recently, the WAN links between the headquarters and branch offices have been slow under peak congestion, yet multiple alternate WAN paths exist that are not always congested. What technology can allow traffic to be routed in a more informed manner to utilize transport characteristics such as delay, loss, or link load?

- A. performance routing
- B. static routing
- C. on demand routing
- D. policy based routing



**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 121

A network engineer is building a LAN design that includes Cisco NAC. What two characteristics of an out-of-band NAC deployment are important to consider when evaluating it for the design? (Choose two.)

- A. supported by a limited number of switch models
- B. never in-line with user traffic
- C. aggregate client traffic is constrained to NAC server port speed
- D. recommended if sharing ports between IP phones and PCs
- E. supports real IP gateway (routed mode)

**Correct Answer:** AD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 122**

Which option is a method of restricting access for users based on user roles and locales?

- A. RBAC
- B. ACE
- C. LDAP
- D. RADIUS

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**



**QUESTION 123**

Which technology should a network designer combine with VSS to ensure a loop free topology with optimal convergence time?

- A. Portfast
- B. UplinkFast
- C. RPVST+
- D. Multichassis EtherChannel

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 124**

What are two methods of ensuring that the multicast RPF check passes without changing the unicast routing table? (Choose two.)

- A. disabling the interface of the router back to the multicast source
- B. disabling BGP routing protocol
- C. implementing MBGP
- D. implementing OSPF routing protocol
- E. implementing static mroutes

**Correct Answer:** AE

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

#### **QUESTION 125**

Which two design principles should be followed to improve EIGRP scaling in any size network? (Choose two.)

- A. Ensure that the network design follows a structured hierarchical topology.
- B. Utilize route summarization on edge devices.
- C. Tune EIGRP delay metric on all core devices.
- D. Implement multiple autonomous systems, regardless of the size of the network.
- E. Configure offset lists on the network border.

**Correct Answer:** AB

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

#### **QUESTION 126**

Which security mechanism can you implement to protect the OSPF information that a router receives?

- A. privilege 15 credentials
- B. administrator username and password authentication
- C. RADIUS authentication
- D. cryptographic authentication

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 127**

Which STP feature can prevent other switches on the network from becoming the root switch, but still allow that interface to participate in STP otherwise?

- A. Root Guard
- B. UDLD
- C. Bridge Assurance
- D. BPDU Guard

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:



**QUESTION 128**

Which interface characteristic is used to calculate the cost of an interface in OSPF when the cost is not configured?

- A. load
- B. reliability
- C. delay
- D. bandwidth

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 129**

Which technology can block ports to provide a loop-free topology and does not contain a port state named “listening?”

- A. VLAN
- B. RPVST+
- C. VSS
- D. STP

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 130**

A network designer needs to explain the advantages of route summarization to a client. Which two options are advantages that should be included in the explanation? (Choose two.)

- A. Increases security by advertising fake networks
- B. Reduces routing table size
- C. Advertises detailed routing tables
- D. Utilizes the routers full CPU capacity
- E. Reduces the upstream impact of a flapping interface



**Correct Answer:** BE

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 131**

Which two methods are available to connect a Cisco IOS device to an active directory domain for authentication? (Choose two.)

- A. Lightweight Directory Access Protocol
- B. DNS Based Authentication of Named Entities
- C. Microsoft Challenge-Handshake Authentication Protocol
- D. RADIUS server
- E. Directory Access Protocol

**Correct Answer:** AD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 132**

What are two point-to-multipoint overlay tunneling strategies that are used in transitioning to IPv6? (Choose two.)

- A. manual
- B. Teredo
- C. ISATAP
- D. GRE
- E. 6to4

**Correct Answer:** CE

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 133**

Which two BGP attributes can be set with outbound policy to manipulate inbound traffic, if honored by the remote autonomous system? (Choose two.)

- A. next hop
- B. AS path
- C. local preference
- D. multi-exit discriminator
- E. weight

**Correct Answer:** BD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 134**

**DRAG DROP**

Drag the IS-IS fast convergence components on the left to the order in which they occur on the right.

**Select and Place:**

SPF run time	occurs first
failure detection time	occurs second
RIB FIB update time	occurs third
event propagation time	occurs fourth

**Correct Answer:**

failure detection time

event propagation time

SPF run time

RIB FIB update time

**Section: (none)**

**Explanation**

**Explanation/Reference:**

**QUESTION 135**

Which security feature can help prevent spoofed packets on the network by verifying the validity of the source's IP address?

- A. DHCP spoofing
- B. DAI
- C. uRPF
- D. 80.21x

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 136**

Which OSPF option can you configure to connect two parts of a partitioned backbone through a nonbackbone area?

- A. route summarization
- B. a virtual link
- C. an NSSA
- D. a static OSPF neighbor

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 137**

Which option is correct when using Virtual Switching System to combine two physical switches into one logical switch?

- A. Both control planes forward traffic simultaneously.
- B. Only one control plane is active, while the other control plane is in standby.
- C. Only one data plane forwards traffic, while the other data plane is in standby.
- D. Control planes are combined into one virtual control plane.

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 138**

You are assigned the network of 192.168.1.0/24. You want to split the network into four subnets that are all the same size. Which three statements about the first subnet that you create are true? (Choose three.)

- A. the subnet mask is 255.255.255.192.
- B. The last host IP address is 192.168.1.64.
- C. The subnet mask is 255.255.255.224.
- D. The subnet has up to 64 hosts.

- E. The last host IP address is 192.168.1.62
- F. The subnet has up to 62 hosts.

**Correct Answer:** AEF

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 139**

In which multicast configuration is MSDP most useful?

- A. intradomain IPv4 PIM SSM
- B. PIM Dense-Mode
- C. IPv6 multicast
- D. interdomain IPv4 PIM Sparse-Mode

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 140**

Which STP feature allows an access port to bypass the learning and listening states?

- A. BPDU Guard
- B. PortFast
- C. Root Guard
- D. Loop Guard

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 141**

Which Layer 2 messaging protocol maintains VLAN configuration consistency?

- A. VTP
- B. VSS
- C. LLDP
- D. CDP

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 142**

When designing a layer 2 STP-based LAN with Layer 3 FHRP, which design recommendation should be followed?

- A. Avoid modifying default STP and FHRP timers.
- B. Assign the native VLAN to the lowest number in use.
- C. Avoid configuring router preemption.
- D. Align the STP root with the active FHRP device.



**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 143**

Which virtualization technology uses Layer 3 BFD to detect network failures between network devices?

- A. VTP
- B. VSS
- C. vPC
- D. Cisco Fabric Path

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 144**

VPLS uses which transport protocol for tunneling Ethernet frames?

- A. L2TP
- B. GRE
- C. IPsec
- D. MPLS

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:



**QUESTION 145**

A network engineer is designing a network that must incorporate active-active redundancy to eliminate disruption when a link failure occurs between the core and distribution layer. What two technologies will allow this? (Choose two.)

- A. Equal Cost Multi-Path (ECMP)
- B. Rapid Spanning Tree Protocol Plus (RSTP+)
- C. Hot Standby Routing Protocol (HSRP)
- D. Rapid Spanning Tree Protocol (RSTP)
- E. Multichassis EtherChannel (MEC)

**Correct Answer:** CE

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 146**

Which three statements about 802.1X are true? (Choose three.)

- A. It is a Cisco proprietary standard.
- B. It can allow and deny port access based on device identity.
- C. It is an IEEE standard.
- D. It can allow and deny port access based on user identity.
- E. By default, it allows devices that lack 802.1 support.
- F. It works only with wired devices.

**Correct Answer:** BCD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 147**

Which option must be included in the design when implementing a triangle looped access layer design?

- A. A first hop redundancy protocol.
- B. Single uplinks between access and distribution switches.
- C. Layer 2 links between access switches.
- D. Layer 3 links between distribution switches.

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 148**

A VPN solution requires bulk traffic encryption, low operating expenses to add new sites, and the ability to accommodate dynamic tunnels between branch locations. What VPN solution can fulfill these requirements?

- A. GETVPN
- B. SSL VPN

- C. Easy VPN
- D. DMVPN

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 149**

What is an advantage of using the vPC feature in a data center environment?

- A. supports FHRP
- B. The two switches form a single control plane
- C. All available uplink bandwidth is utilized
- D. A single IP is used for management of both devices

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 150**

An organization is using a link state routing protocol that is not dependent on IP addressing. Which action should be taken to enable routing across area boundaries in this environment?

- A. Assign Level 1 router interfaces to different areas
- B. Assign Level 2 routers to different areas
- C. Assign Level 1 routers to different areas
- D. Assign Level 2 router interfaces to different areas
- E. Assign Level 2 router interface to the backbone area
- F. Assign Level 1 router interface to the backbone area

**Correct Answer:** AE

**Section:** (none)

**Explanation****Explanation/Reference:**

Explanation:

**QUESTION 151**

A network engineer must select a network technology to simplify the extension of Layer 2 networks between data centers with a requirement of less than 4,000 VLANs. Which two network technologies accomplish this requirement? (Choose two.)

- A. MPLS
- B. L2TP
- C. VXLAN
- D. LISP

**Correct Answer:** AB

**Section:** (none)

**Explanation****Explanation/Reference:**

Explanation:

**QUESTION 152**

Which option is the unique requirement when supporting IP Multicast packets when designing IPsec VPNs?

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

**Correct Answer:** D

**Section:** (none)

**Explanation****Explanation/Reference:**

References:

**QUESTION 153**

An organization is acquiring another company and merging the two company networks. No subnets overlap, but the engineer must limit the networks advertised to the new organization. Which feature implements this requirement?

- A. route filtering
- B. stub area
- C. passive interface
- D. interface ACL

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

#### QUESTION 154

A network link is going up and down rapidly, and it is hindering network performance and routing table stability. Which option can be configured to insulate against the performance impact of interface or link failure throughout the network?

- A. distributed Cisco Express Forwarding switching
- B. default route propagation
- C. route summarization
- D. secondary IP addressing



**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

#### QUESTION 155

A company requires a simple network access control solution that allows for software defined segmentation based on user and device contextual information. Which two technologies must be implemented to meet these requirements? (Choose two.)

- A. Clean Access
- B. Identity Service Engine
- C. TrustSec
- D. Secure Access Control System
- E. NAC Agent

**Correct Answer:** BC

**Section:** (none)

**Explanation**

**Explanation/Reference:**

References:

**QUESTION 156**

A client's security policy requires separate management and control planes for different divisions within the company. Which technology can be used to achieve this requirement while minimizing the number of physical devices?

- A. virtualrouting and forwarding
- B. virtual device contexts
- C. virtual port channels
- D. virtual switching system
- E. virtual local area networks

**Correct Answer:** B

**Section:** (none)

**Explanation**



**Explanation/Reference:**

Explanation:

**QUESTION 157**

Which method does Cisco recommend for deploying OTV to multiple data centers?

- A. Use unicast-only transport.
- B. Use multicast-enabled transport.
- C. Filter MAC addresses at the join interface.
- D. Configure one edge device for each data center.

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 158**

A company has asked for an OOB management network design. Which option is one Cisco best practice parameter that must be followed?

- A. Data networks can traverse the management network as a backup path.
- B. Data networks and management networks must be in the routing table.
- C. Data networks must be limited to SSH, NTP, FTP, SNMP and TACACS+ protocols.
- D. Data networks must never traverse the management network.

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 159**

An engineer is designing a campus network and must implement subsecond failover as it relates to OSPF and EIGRP designs. Which action accomplishes this requirement?

- A. Design a triangle topology and tune the timers on the routing protocol.
- B. Design a square topology and use port-channeling on each path.
- C. Design a square topology and tune the timers on the routing protocol.
- D. Design a triangle topology and use Bidirectional Forwarding Detection.

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 160**

Multicast has been enabled and configured in the Enterprise, and PIM Sparse-mode has been enabled on all VLANs. What feature is required to stop multicast traffic from being broadcasted on the access layer switches?

- A. Multicast boundary filter
- B. PIM dense-mode
- C. IGMP snooping

D. Dynamic ARP inspection

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 161**

While planning a new WAN design, an engineering team is asked to use software defined networking as part of the wide area network strategy. Which SDN controller allows for applications iWAN control, Plug and Play and Enterprise Service Automation?

- A. Enterprise NFV
- B. APIC
- C. Wide Area Application Service
- D. APIC-EM

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

References:

**QUESTION 162**

DRAG DROP

Drag and drop the isolation technique from the left into the corresponding tenant separation category on the right. Not all options are used.

**Select and Place:**

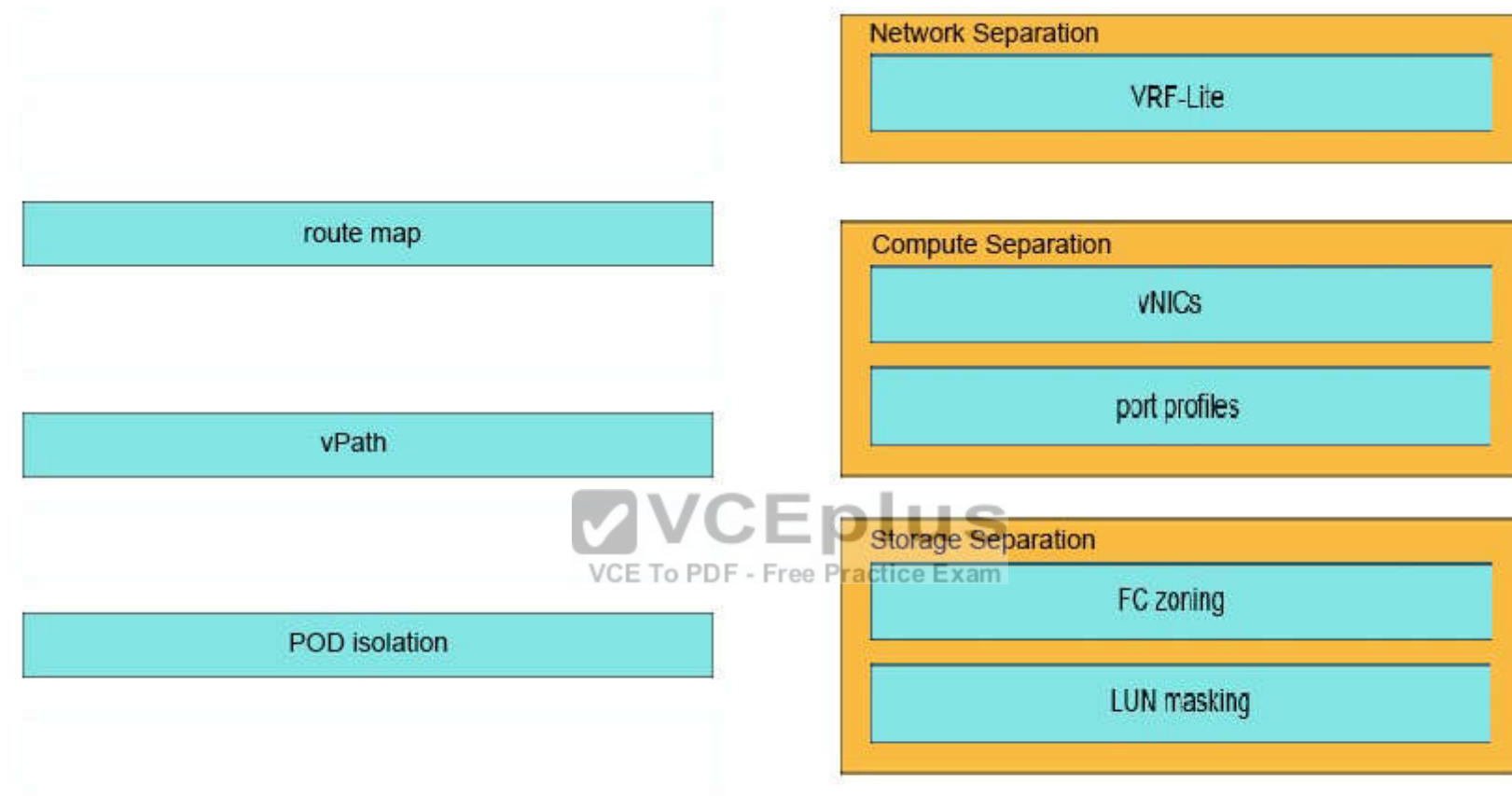
VRF-Lite
port profiles
route map
vNICs
vPath
FC zoning
POD isolation
LUN masking

Network Separation

Compute Separation

Storage Separation

**Correct Answer:**



**Section: (none)**  
**Explanation**

**Explanation/Reference:****QUESTION 163**

To which network layer should Cisco Express Forwarding be tuned to in order to support load balancing and to make more informed forwarding decisions?

- A. Layer 2
- B. Layer 3
- C. Layer 4
- D. Layer 5

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 164**

An engineer has implemented a QoS architecture that requires a signaling protocol to tell routers which flows of packets require special treatment. Which two mechanisms are important building blocks to establishing and maintaining QoS in this architecture? (Choose two.)

- A. policing
- B. classification
- C. admission control
- D. tagging
- E. low-latency queuing
- F. resource reservation
- G. packetscheduling

**Correct Answer:** BF

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 165**

An engineering team must design a firewall solution with shared hardware resources but separation of features such as ACLs, NATs and management between

the external business partners of the organization. Which ASA deployment mode meets these requirements?

- A. routed mode
- B. transparent mode
- C. multicontext mode
- D. clustering mode

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 166**

A device failure in an active/active ASA firewall pair caused an outage. An engineer wants to ensure that load balancing across the firewall pair and automatic failover is permitted. Which traffic engineering method must be used?

- A. IP SLA
- B. BFD
- C. ASR groups
- D. ECMP



**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 167**

An engineer is designing a Cisco Application Centric Infrastructure network. What is the expected number of links between spine switches?

- A. 0
- B. 1
- C. 2
- D. 4

**Correct Answer:** A

**Section: (none)**

**Explanation**

**Explanation/Reference:**

References:

**QUESTION 168**

After an incident caused by a DDos attack on a router, an engineer must ensure that the router is accessible and protected from future attacks without making any changes to traffic passing through the router. Which security function can be utilized to protect the router?

- A. zone based policy firewall
- B. access control lists
- C. class maps
- D. modular QoS CLI
- E. control plane policing

**Correct Answer: E**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:



**QUESTION 169**

An engineer must design a Cisco VSS-based configuration within a customer campus network. The two VSS switches are provisioned for the campus distribution layer and each one has a single supervisor and multiple 10 gigabit line cards. Which option is the primary reason to avoid plugging both VSL links into the supervisor ports?

- A. QoS is required on the VSL links.
- B. Limited bandwidth is available for VSS convergence.
- C. The design lacks optimal hardware diversity.
- D. The implementation creates a loop.

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 170**  
**DRAG DROP**

Drag and drop the Remote Data Center Layer 2 Extension option from the left onto its function on the right.

**Select and Place:**

A-VPLS	utilizes multichassis EtherChannel on high-speed optical dense waveleingh-division multiplexing links
EoMPLS	provides Ethernet-based multipoint-to-multipoint interconnec- tions over an MPLS network
VPLS	utilizes virtual interface-based command-line interface concept for switch port configuration called virtual Ethernet
VSS	provides a high-availability connection when only two data centers are connected in a point-to-point fashion

**Correct Answer:**

	A-VPLS
	VPLS
	VSS
	EoMPLS

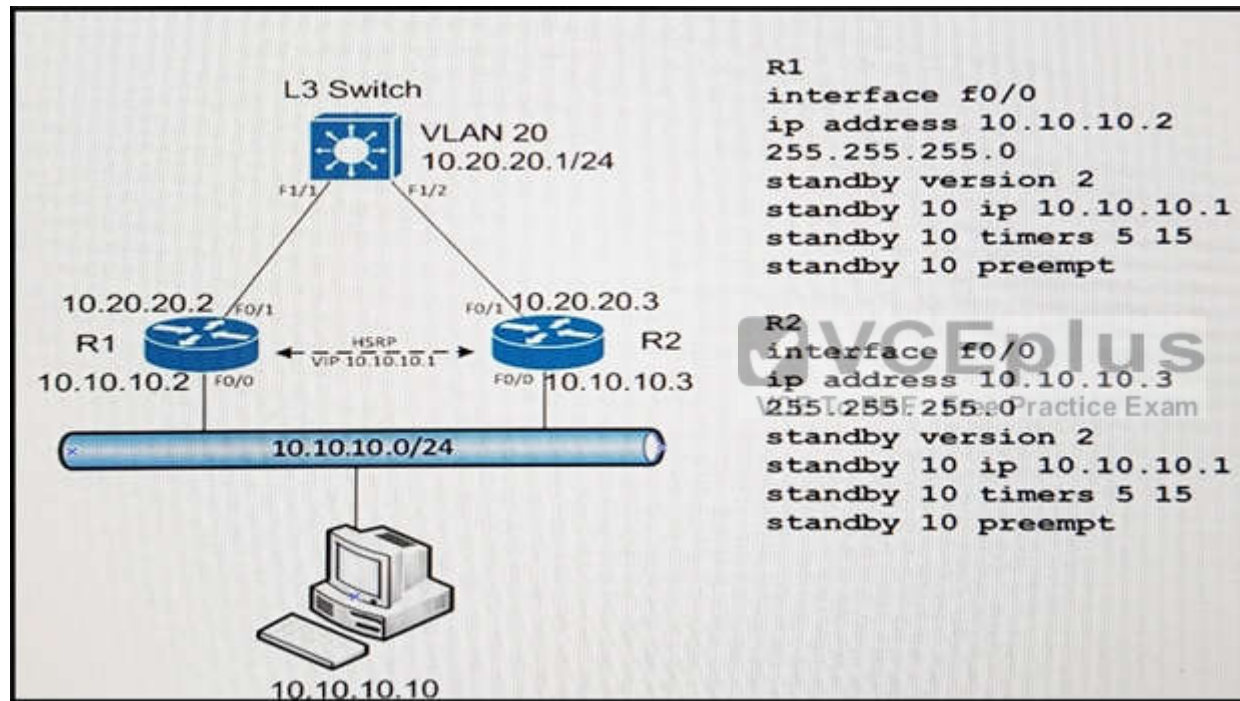
**Section: (none)**

## Explanation

## Explanation/Reference:

### QUESTION 171

Refer to the exhibit. A customer discovers router R1 remains active even when the R1 uplink (F0/1) is down. Which two comments can be applied to R1 to allow R2 to take over as the HSRP active? (Choose two.)



- A. standby 10 track 50 shutdown
- B. standby 10 track 50 decrement 20
- C. track 50 ip route 10.10.10.0/24 reachability
- D. standby 10 track 50
- E. track 50 interface Fa0/1 ip routing

**Correct Answer:** DE

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 172**

During the design of a new data center, a company requires that access switches be placed near servers without requiring a one-to-one ratio of switches to network racks. Which switch layout must be used?

- A. end of row
- B. top of rack
- C. integrated
- D. centralized

**Correct Answer: B**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:



**QUESTION 173**

**DRAG DROP**

An engineer must provide segmentation for a shop floor environment that has only a single /24 network available. Each area of machinery needs to have its own subnet. Drag and drop the subnet from the left onto the corresponding IP addressing design on the right. Not all options are used.

**Select and Place:**

10.3.3.0/26	12 hosts for Tube Bending
10.3.3.64/26	18 hosts for Arc Welder
10.3.3.16/27	32 hosts for boiler Assembly
10.3.3.64/27	5 hosts for Plasma Cutting
10.3.3.8/28	
10.3.3.96/28	
10.3.3.112/29	

**Correct Answer:**

	10.3.3.96/28
10.3.3.64/26	10.3.3.64/27
10.3.3.16/27	10.3.3.0/26
	10.3.3.112/29
10.3.3.8/28	

**Section: (none)**  
**Explanation**

**Explanation/Reference:****QUESTION 174**

Two companies want to merge their OSPF networks, but they run different OSPF domains. Which option must be created to accomplish this requirement?

- A. OSPF virtual link to bridge the backbone areas of the two companies together
- B. Area on the ASBR of each company with the same area ID to bridge the networks together
- C. redistribute routes between domains
- D. NSSA on the ASBR of each company

**Correct Answer: C**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 175**

In what situation must spanning-tree be implemented?

- A. when fast convergence is required for link failures
- B. when redundant Layer 2 links, that are not part of a single EtherChannel or bundle, exist between distribution switches
- C. when trunks need to extend multiple VLANs across access switches
- D. when a VLAN spans access layer switches

**Correct Answer: B**

**Section: (none)**

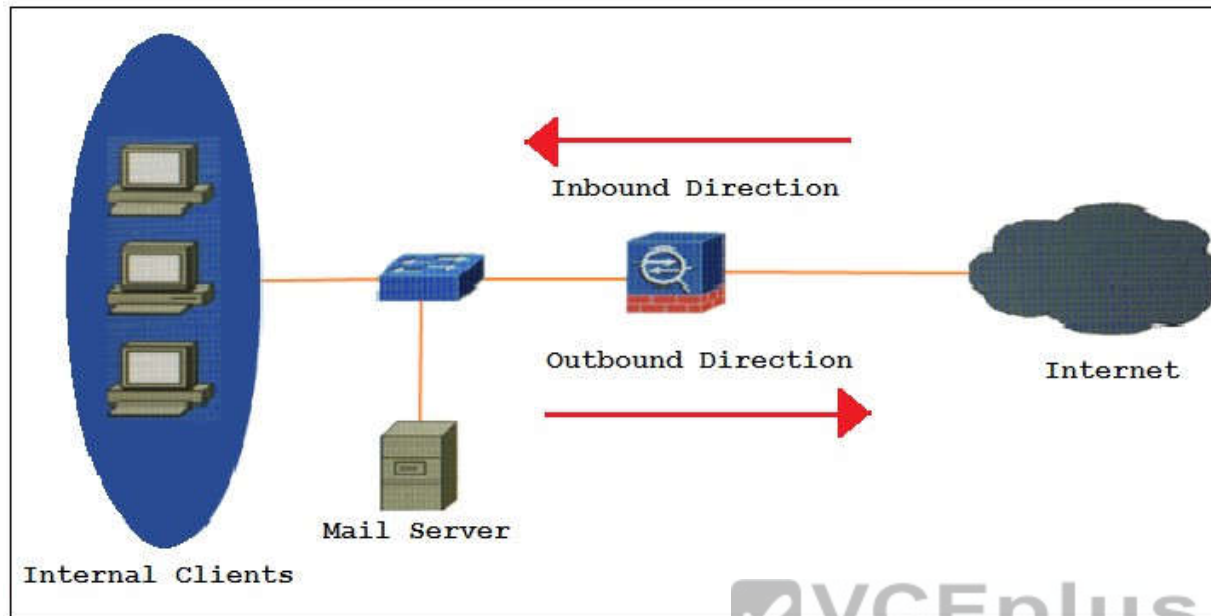
**Explanation**

**Explanation/Reference:**

Explanation:

**QUESTION 176**

View the Exhibit.



Refer to the exhibit. An engineer is designing a new firewall for an organization and must provision Network Address Translation. This new firewall must support basic Internet access for the organization as well as provide inbound connectivity to the mail server. The infrastructure has only one public IP address available for use on the new firewall.

Which two forms of NAT must be configured? (Choose two.)

- A. static NAT for the inbound traffic on port 25
- B. dynamic NAT for the inbound traffic on port 25
- C. dynamic NAT for the outbound traffic
- D. NAT overloading for the outbound traffic
- E. NAT overloading for the inbound traffic on port 25

**Correct Answer:** AD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 177**

An engineer is configuring QoS to meet the following requirement. All traffic that exceeds the allocated bandwidth will still traverse the infrastructure but will be buffered and queued for later transmission.

Which QoS tool meets these requirements?

- A. Shaping
- B. Per-Hop Behaviors
- C. Weighted Fair Queuing
- D. IP Precedence

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 178**

A network engineer wants to segregate three interconnected campus networks via ISIS routing. A two-layer hierarchy must be used to support large routing domains to avoid more specific routes from each campus network being advertised to other campus network routers automatically.

What two actions should be taken to accomplish this segregation? (Choose two.)

- A. Assign a unique ISIS NET value for each campus and configure internal campus routers with Level 1 routing.
- B. Designate two ISIS routers from each campus to act as a Layer 1/Layer 2 backbone routers at the edge of each campus network.
- C. Assign similar router ID to all routers within each campus.
- D. Designate two ISIS routers as BDR routers at the edge of each campus.
- E. Change the MTU sizes of the interface of each campus network router with a different value.

**Correct Answer:** AB

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 179**

A network engineer is using OTV to connect six data centers.

Which option is preferred when deploying OTV to more than three sites?

- A. Use unicast-only transport.
- B. Avoid multihoming.
- C. Use multicast-enabled transport.
- D. Filter MAC addresses at the join interface.

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 180

Which two statements about 802.1X are true? (Choose two.)

- A. It can allow and deny port access based on device identity.
- B. It is a Cisco proprietary standard.
- C. It works only with wired devices.
- D. By default, it allows devices that lack 802.1 support.
- E. It can allow and deny port access based on user identity.

**Correct Answer:** AC

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 181

A company is running BGP on the edge with multiple service providers in a primary and secondary role. The company wants to speed up convergence time if a failure were to occur with the primary, but they are concerned about router resources.

Which method best achieves this goal?

- A. Utilize BFD and lower BGP hello interval.

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

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 182**

An engineer is designing a Layer 3-enabled access layer.

Which design recommendation must the engineer consider when deploying EIGRP routing within the access layer?

- A. Configure all edge access layer switches to use a stub routing feature.
- B. Implement floating static routes on access switches for redundant links.
- C. Use the First Hop Redundancy Protocol on access layer switches.
- D. Enable multiple uplinks from each access switch stack to the distribution switches.

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 183**

An engineer is designing an IP addressing scheme for a local company that requires multicast for its application. For security reasons, only explicitly configured devices can be permitted to transmit across the network.

Which multicast technology and address range must the engineer select?

- A. PIM-SM; 232.0.0.0/8
- B. ASM; 232.0.0.0/8
- C. SSM; 224.0.0.0/8
- D. SSM; 232.0.0.0/8

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 184**

A company wants to configure BGP on a router so that other BGP neighbors cannot influence the path of a particular route.

Which action must be taken to accomplish this configuration?

- A. Configure a low router ID for the route.
- B. Configure a high local preference for the route.
- C. Configure a high weight for the route.
- D. Configure a low MED for the route.

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**



**QUESTION 185**

An engineering team must allow communications between a new two-tier application in a Cisco Application-Centric Infrastructure environment.

Which two elements must be configured to allow communications between two endpoint groups that represents the application? (Choose two.)

- A. context
- B. filter
- C. access control list
- D. contract
- E. route map

**Correct Answer:** AB

**Section:** (none)

**Explanation**

**Explanation/Reference:****QUESTION 186**

A network engineer must use an Internet connection to provide backup connectivity between two sites. The backup connection must be encrypted and support multicast.

Which technology must be used?

- A. GETVPN
- B. IPsec direct encapsulation
- C. DMVPN
- D. GRE over IPsec

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:****QUESTION 187**

An engineer is designing a multitenant network that requires separate management access and must share a single physical firewall.

Which two features support this design? (Choose two.)

- A. multicast routing
- B. dynamic routing protocols
- C. site-to-site VPN
- D. quality of service
- E. threat detection
- F. unified communications

**Correct Answer:** BC

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 188**

A network design team has been tasked to address sustained congestion on access and distribution uplinks. QoS has already been implemented and optimized, but it is no longer effective in ensuring optimal network performance.

Which two actions can significantly improve network performance? (Choose two.)

- A. Utilize random early detection to manage queues.
- B. Bundle additional uplinks into logical EtherChannels.
- C. Configure selective packet discard to drop noncritical network traffic.
- D. Reconfigure QoS based on the IntServ model.
- E. Implement higher-speed uplink interfaces.

**Correct Answer:** BE

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 189**

Due to audit requirements, a medical center wants to ensure that only authorized personnel can make changes on network equipment within the company. In addition, only specific engineers are permitted access to change security settings on these devices.

Which function must engineers utilize to ensure that these requirements are met?

- A. SNMP community strings
- B. Role Based Access Control
- C. RADIUS Secret
- D. VTY access control lists

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 190**

What is an advantage of using the vPC feature in a data center environment?

- A. All available uplink bandwidth is utilized.
- B. The two switches form a single control plane.
- C. FHRP is not required.
- D. A single IP is used for management of both devices.

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 191

While troubleshooting an Application Centric network cluster, an engineer sees that an APIC has gone offline.

What is the minimum number of APICs required for a production ACI fabric to continue to operate?

- A. 1
- B. 2
- C. 3
- D. 4



**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 192

Which two options regarding the Cisco TrustSec Security Group Tag are true? (Choose two.)

- A. Best Practice dictates that deployments should include a guest group allowing access to minimal services.
- B. Best Practice dictates that deployments should include a security group for common services such as DNS and DHCP.
- C. Best Practice dictates it should be statically created on the switch.
- D. It is assigned by the Cisco ISE to the user or endpoint session upon login.

E. It is removed by the Cisco ISE before reaching the endpoint.

**Correct Answer:** BD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 193**

An engineer is designing a multicluster BGP network where each cluster has two route reflectors and four Route Reflector clients.

Which two options must be considered in this design? (Choose two.)

- A. Clients must not peer with iBGP speakers outside the client cluster.
- B. Clients should peer with at least one other client outside of its own cluster.
- C. All route reflectors should be nonclient peers and the topology is partially meshed.
- D. All route reflectors must be nonclient peers in a fully meshed topology.
- E. Clients from all clusters should peer with all route reflectors.

**Correct Answer:** AD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 194**

An engineer is designing a QoS architecture for a small organization and must meet these criteria:

- Guarantees resources for a new traffic flow prior to sending.
- Polices traffic when the flow does not confirm.

Which QoS architecture model will accomplish this?

- A. integrated services
- B. auto quality of service
- C. differentiated services
- D. modular quality of service

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 195**

An engineer is designing a multichassis EtherChannel using VSS.

Which network topology is the result?

- A. ring
- B. hybrid
- C. star
- D. looped

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**



**QUESTION 196**

Which two options are characteristics of bidirectional PIM? (Choose two.)

- A. A designated forwarder is not required.
- B. A registration process is required.
- C. The creation of a source tree is required.
- D. It is ideal for many-to-many host applications.
- E. It enables scalability with a large number of sources.

**Correct Answer:** DE

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 197**

A network engineer is designing a network that must incorporate active-active redundancy to eliminate disruption when a link failure occurs between the core and distribution layer.

What two technologies will allow this? (Choose two.)

- A. Hot Standby Routing Protocol (HSRP)
- B. Rapid Spanning Tree Protocol (RSTP)
- C. Equal Cost Multi-Path (ECMP)
- D. Multichassis EtherChannel (MEC)
- E. Rapid Spanning Tree Protocol Plus (RSTP+)

**Correct Answer:** CD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 198**

When a site has Internet connectivity with two different ISP's, which two strategies are recommended to avoid becoming a BGP transit site? (Choose two.)

- A. Advertise all routes to both ISPs.
- B. Filter routes outbound to the ISPs.
- C. Accept all inbound routes from the ISPs.
- D. Filter routes inbound from the ISPs.
- E. Use a single service provider.

**Correct Answer:** BD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 199**

Which two characteristics of the 802.1X standard are true? (Choose two.)

- A. This standard supports only wired LANs.
- B. Its EAP messages always require underlying PPP protocol.
- C. It can package EAP messages in Ethernet frames and not use PPP.
- D. It was created by IETF.
- E. It was created by IEEE.

**Correct Answer:** CE

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 200**

Which two technologies can be used to interconnect data centers over an IP network and provide Layer 2 LAN extension? (Choose two.)

- A. IS-IS
- B. FabricPath
- C. VXLAN
- D. OTV
- E. TRILL



**Correct Answer:** CD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 201**

What is one limitation of MPLS Layer 3 VPN networks?

- A. They require the customer to control routing.
- B. They require less powerful routers with limited capabilities.
- C. PE routers are underutilized.
- D. They support only IP traffic.

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 202**

Which two values does EIGRP use to calculate the metric of a route in a converged EIGRP topology? (Choose two.)

- A. hops
- B. redundancy
- C. cost
- D. bandwidth
- E. delay

**Correct Answer:** DE

**Section:** (none)

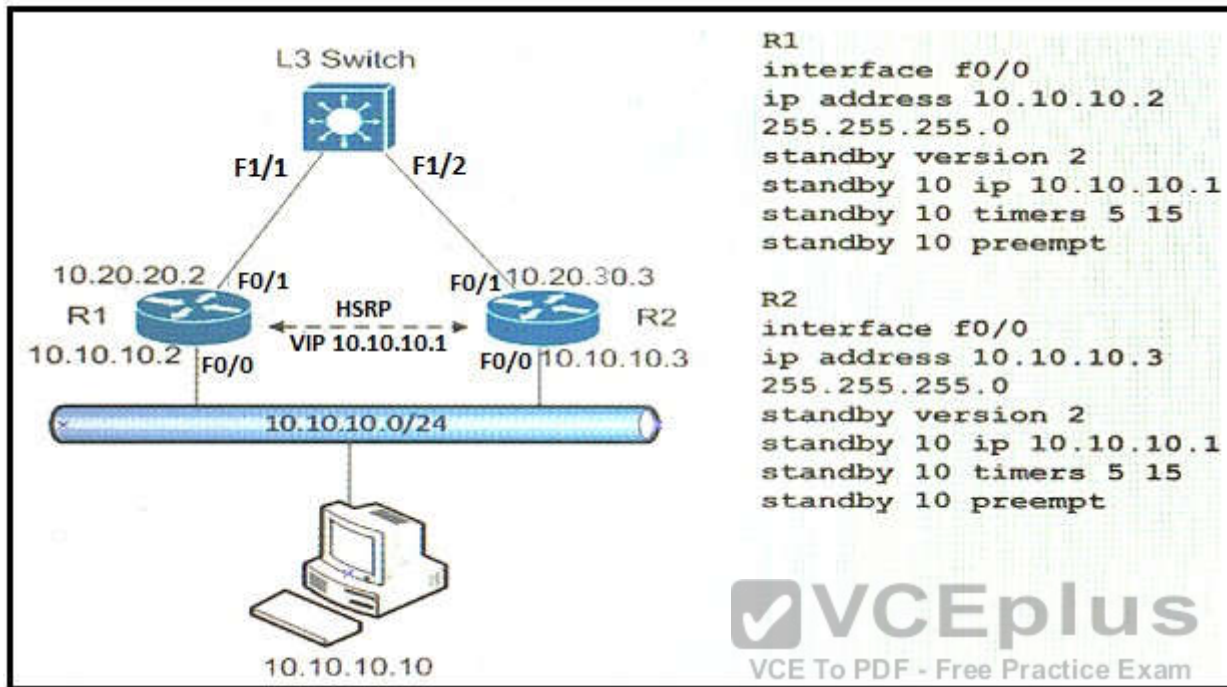
**Explanation**

**Explanation/Reference:**



**QUESTION 203**

View the Exhibit.



Refer to the exhibit. A customer wants to use HSRP as a First Hop Redundancy Protocol. Both routers are currently routing and all interfaces are active.

Which factor determines which router becomes the active HSRP device?

- A. the router with the highest interface bandwidth for the respective group
- B. the router with the highest MAC address for the respective group
- C. the router with the highest IP address for the respective group
- D. the router that boots up last

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 204**

When designing data centers for multitenancy, which two benefits are provided by the implementation of VSANs and zoning? (Choose two.)

- A. Zones provide the ability to create many logical SAN fabrics on a single Cisco MDS 9100 family switch.
- B. VSANs have their own set of services and address space, which prevents an issue in one VSAN from affecting others.
- C. VSANs and zones use separate fabrics.
- D. Zones allow an administrator to control which initiators can see which targets.
- E. VSAN provides a means of restricting visibility and connectivity among devices connected to a zone.

**Correct Answer:** BD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 205**

A network consultant is designing an enterprise network that includes an IPsec headed termination device. Which two capabilities are the most important to consider when assessing the headend device's scalability? (Choose two.)

- A. Bandwidth capabilities
- B. Packets per second processing capability
- C. CPU capabilities
- D. Number of tunnels that can be aggregated
- E. Memory capabilities

**Correct Answer:** BD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 206**

What is the result of a successful RPF check?

- A. The packet is dropped because it arrived on the interface used to route traffic back to the source address.
- B. The packet is forwarded because it arrived on the interface used to route traffic back to the source address.

- C. The packet is forwarded because it arrived on the interface used to route traffic to the destination address.
- D. The packet is dropped because it arrived on the interface used to route traffic to the destination address.

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 207**

An organization is creating a detailed QoS plan that limits bandwidth to specific rates. Which three parameters can be configured when attempting to police traffic within the network? (Choose three.)

- A. Violating
- B. Committed information rate
- C. Peak information rate
- D. Shaping rate
- E. Bursting
- F. Conforming
- G. Exceeding



**Correct Answer:** EFG

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 208**

The network engineering team for a large university must increase the security within the core of the network by ensuring that IP traffic only originates from a network segment that is assigned to that interface in the routing table. Which technology must be chosen to accomplish this requirement?

- A. VLAN access control lists
- B. Unicast Reverse Path Forwarding
- C. Intrusion prevention system
- D. ARP Inspection

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 209**

An engineer is designing a network using RSTP. Several devices on the network support only legacy STP. Which outcome occurs?

- A. RSTP and STP choose the protocol with the best performance.
- B. RSTP and STP interoperate and fast convergence is achieved.
- C. RSTP and STP are not compatible and legacy ports error disable.
- D. RSTP and STP interoperate, but the fast convergence is not used.

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**



**QUESTION 210**

An engineer is designing a redundant dual-homed BGP solution that should prefer one specific carrier under normal conditions. Traffic should automatically fail over to a secondary carrier in case of a failure. Which two BGP attributes can be used to achieve this goal for inbound traffic? (Choose two.)

- A. Local Preference
- B. Weight
- C. AS-PATH
- D. MED
- E. Origin

**Correct Answer:** CD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 211**

Which two BGP attributes can be set with outbound policy to manipulate inbound traffic? (Choose two.)

- A. AS path
- B. Multi-exit discriminator
- C. Next hop
- D. Weight
- E. Local preference

**Correct Answer:** AB

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 212**

An OSPF router should participate in maximum of how many areas?

- A. 3
- B. 2
- C. 1
- D. 4

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Reference: <http://www.ciscopress.com/articles/article.asp?p=1763921&seqNum=6>

**QUESTION 213**

Refer to the exhibit.

```
<b>GigabitEthernet0/0 is up, line protocol is up Hardware is CN  
Gigabit Ethernet, address is 4c00.8200.0000 (bia 4c00.
```

```
...
```

```
Internet address is 10.3.3.3/24
```

```
MTU 1500 bytes, BW 50000 Kbit/sec, DLY 10 usec,  
    reliability 255/255, txload 5/255, rxload 9/255
```

```
...
```

```
Full Duplex, 1Gbps, media type is RJ45</b>
```

An engineering team is analyzing the WAN connection for a site that has a 50 Mbps Ethernet circuit. Which technology should be used to keep the router from overrunning the carrier's 50 Mbps rate?

- A. Access Control List
- B. Shaping
- C. Policing
- D. Rate-Limit

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### QUESTION 214

A company is multihomed to different service providers running BGP. Which action ensures that the company AS does not become a transit AS?

- A. Create a distribute list that filters all routers except the default route and applies to both BGP neighbor interfaces in the inbound direction.
- B. Create a route map that matches the provider BGP communities and networks and applies to both neighbor interfaces in the outbound direction.
- C. Create a prefix list that matches the company prefix(es) and applies to both BGP neighbor definitions in the outbound direction.
- D. Create a distribute list that filters all routes except the default route and applies to a single BGP neighbor in the outbound direction.

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:****QUESTION 215**

A customer would like to implement a firewall to secure an enterprise network. However, the customer is unable to allocate any new subnets. What type of firewall mode must be implemented?

- A. Routed
- B. Active/standby
- C. Transparent
- D. Virtual
- E. Active/active
- F. Zone based

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:****QUESTION 216**

An engineer is trying to minimize the number of EIGRP routes within an infrastructure. Which command achieves automatic summarization?

- A. eigrp stub
- B. ip summary-address 10.0.0.0 255.0.0.0
- C. ip summary-address eigrp 1 10.0.0.0 255.0.0.0
- D. area 0 range 10.0.0.0 255.0.0.0
- E. router eigrp 1

**Correct Answer:** E

**Section:** (none)

**Explanation**

**Explanation/Reference:****QUESTION 217**

Which option is a design recommendation for route summarizations?

- A. Routing protocol stub areas
- B. Defensive route filtering for defense against inappropriate routing traffic
- C. Route summarization for scalable routing and addressing design
- D. Route summarization to support greater volumes of transit traffic
- E. Traffic redistribution for the prevention of readvertising of routes

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 218**

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 architecture is most appropriate for the requested design?

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

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 219**

A customer with 30 branch offices requires dynamic IGP routing protocols, IP multicast, and non-IP protocol support. Which solution satisfies these requirements?

- A. VTI
- B. IPsec direct encapsulation
- C. DMVPN hub-and-spoke
- D. p2p GRE
- E. DMVPN spoke-to-spoke

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 220**

An engineer is considering uplink bandwidth over-subscription in a Layer 3 network design. Which option is the Cisco recommended over-subscription ratio for uplinks between the distribution and core layers?

- A. 3 to 1
- B. 4 to 1
- C. 6 to 1
- D. 8 to 1

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**



#### **QUESTION 221**

A network engineer must reduce the security risks on a BGP network. Which option helps to avoid rogue route injection, unwanted peering, and malicious BGP activities?

- A. Apply route maps and policies in route redistribution events.
- B. Apply MD5 authentication between all BGP peers.
- C. Encrypt all traffic with IPsec between neighbors.
- D. Use GRE tunnels between all BGP peers.

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 222**

An OSPF router should have a maximum of how many adjacent neighbors?

- A. 100
- B. 80
- C. 60
- D. 50

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 223**

How does stub routing affect transit routes in EIGRP?

- A. Transit routes are passed from a stub network to a hub network.
- B. It is designed to prevent the distribution of external routes.
- C. It prevents the hub router from advertising networks learned from the spokes.
- D. Transit routes are filtered from stub networks to the network hub.

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 224**

What is the most important consideration when selecting a VPN termination device?

- A. Bits per second
- B. Packets per second
- C. VPN session per interface
- D. CPU cycles per second

**Correct Answer:** B

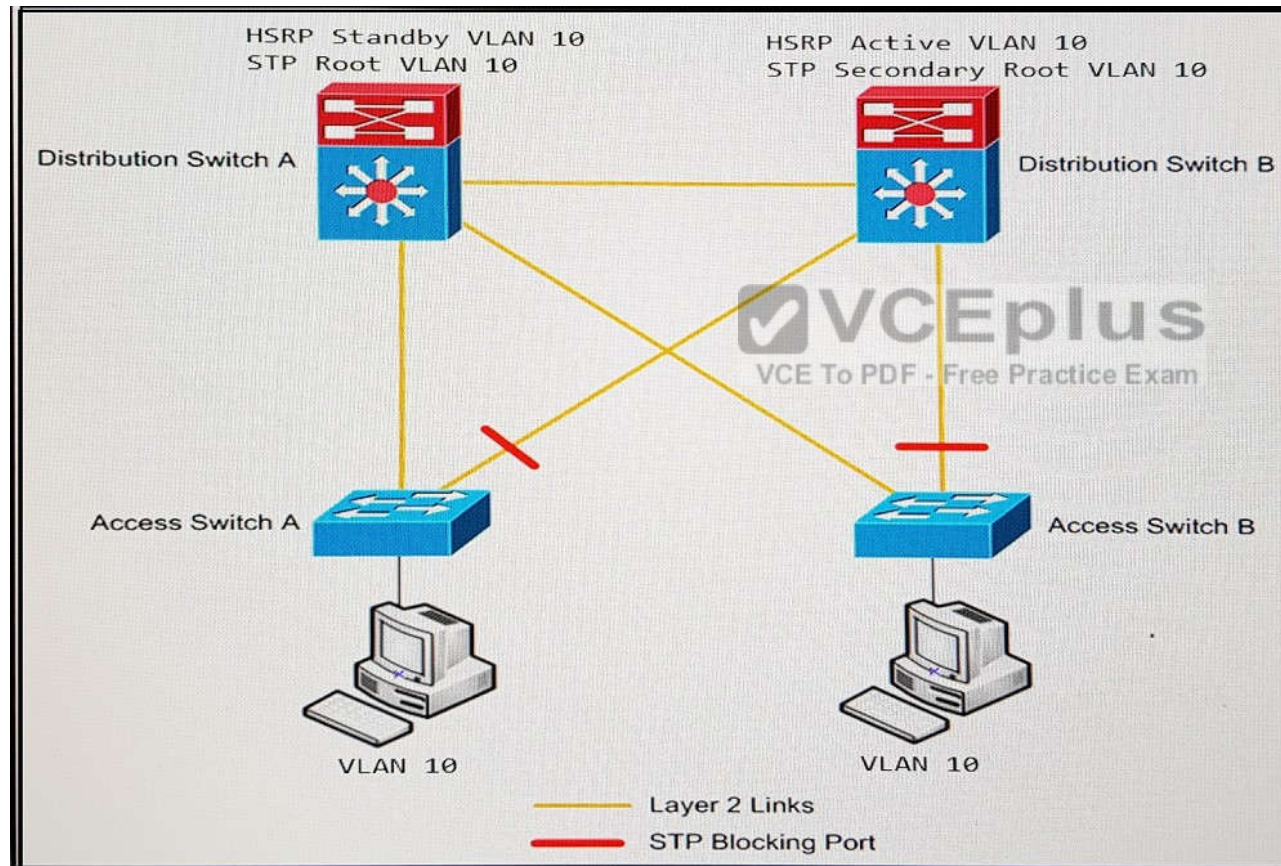
**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 225**

Refer to the exhibit.



An engineer must provide a redesign for the distribution and access layers of the network. Which correction allows for a more efficient design?

- A. Change the link between Distribution Switch A and Distribution Switch B to be a routed link.
- B. Reconfigure the Distribution Switch A to become the HSRP Active.
- C. Create an EtherChannel link between Distribution Switch A and Distribution Switch B.
- D. Add a link between Access Switch A and Access Switch B.

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 226**

A network engineer must create a backup network connection between two corporate sites over the Internet using the existing company ASA firewalls. Which VPN technology best satisfies this corporate need?

- A. GETVPN
- B. DMVPN
- C. MPLS
- D. VPLS
- E. IPsec
- F. OTV



**Correct Answer:** E

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 227**

An organization is acquiring another company and merging the two company networks. No subnets overlap, but the engineer must limit the networks advertised to the new organization.

Which feature implements this requirement?

- A. Stub area
- B. Interface ACL

- C. Route filtering
- D. Passive interface

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 228**

What is the preferred protocol for a router that is running in an IPv4 and IPv6 dual-stack configuration?

- A. Microsoft NetBIOS
- B. IPv6
- C. IPv4
- D. IPX

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 229**

A network manager wants all remote sites to be designed to communicate dynamically with each other using DMVPN technology without requiring much configuration on the spoke routers. DMVPN uses which protocol to achieve this goal?

- A. SSH
- B. ARP
- C. GRE
- D. NHRP

**Correct Answer:** D

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 230**

Which option simplifies encryption management?

- A. MPLS VPN
- B. GET VPN
- C. IPsec VPN
- D. Cisco Easy VPN

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 231**

A network engineer wants to limit the EIGRP query scope to avoid high CPU and memory utilization on low-end routers as well as limiting the possibility of a stuck-in-active routing event between HQ and branch offices. Which action is the best way to achieve these goals?

- A. Configure all routers at HQ and branch offices as EIGRP stub.
- B. Configure all routers at branch offices as EIGRP stub.
- C. Configure all routers at branch offices as EIGRP stub and allow only directly connected networks at branch offices to be advertised to HQ.
- D. Configure different autonomous systems numbers per each branch office and HQ and redistribute routes between autonomous systems.

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 232**

Cisco Fabricpath brings the benefits of routing protocols to Layer 2 network Ethernet environments. What are two advantages of using Cisco FabricPath technology? (Choose two.)

- A. Cisco FabricPath provides MAC address scalability with conversational learning.
- B. Cisco FabricPath relies on OSPF to support Layer 2 forwarding between switches, which allows load balancing between redundant paths.

- C. Cisco FabricPath is IETF-standard and is not used with Cisco products.
- D. Loop mitigation is provided by the TTL field in the frame.
- E. Cisco FabricPath technology is supported in all Cisco platforms and can replace legacy Ethernet in all campus networks.

**Correct Answer:** AD

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 233**

A client request includes a network design that ensures all connections between the access layer and distribution layer are active and forwarding traffic at all times. Which design approach achieves this request?

- A. Create a VSS between the two distribution switches and also create a MEC between the VSS and each access layer switch.
- B. Configure HSRP for all VLANs and adjust the hello timer for faster convergence.
- C. Configure Rapid PVST+ and adjust the timers for faster convergence.
- D. Enable backbone fast on the two distribution switches and create a port channel between each access layer switch and both distribution switches.

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

#### **QUESTION 234**

Which two protocols support simple plaintext and MD5 authentication? (Choose two.)

- A. EIGRP
- B. BGP
- C. RIP
- D. OSPF
- E. IPv6

**Correct Answer:** AD

**Section:** (none)

**Explanation****Explanation/Reference:****QUESTION 235**

When you configure a multichassis setup with VSS, which link must be configured to extend the backplane between the two switches?

- A. VSL
- B. LCAP
- C. ISL
- D. PaGP

**Correct Answer:** A

**Section:** (none)

**Explanation****Explanation/Reference:****QUESTION 236**

A large-scale IP SLA deployment is causing memory and CPU shortages on the routers in an enterprise network. Which solution can be implemented to mitigate these issues?

- A. An offline router for disaster recovery
- B. A shadow router
- C. A standby router for failover operation
- D. A CPE device that is managed by the network provider

**Correct Answer:** B

**Section:** (none)

**Explanation****Explanation/Reference:**