Introduction to Functions of Networking (3)

1. What are two descriptions of three-tier network topologies? *(Choose two)*

    A. The core and distribution layers perform the same functions

    B. The access layer manages routing between devices in different domains

    C. The network core is designed to maintain continuous connectivity when devices fail

    D. The core layer maintains wired connections for each host

    E. The distribution layer runs Layer 2 and Layer 3 technologies

2. What is the name of the layer in the Cisco borderless switched network design that is considered to be the backbone used for high-speed connectivity and fault isolation?

    A. Data link

    B. Access

    C. Core

    D. Network

    E. Network access

3. Which two functions are performed by the core layer in a three-tier architecture? *(Choose two)*

    A. Provide direct connectivity for end user devices

    B. Police traffic that is sent to the edge of the network

    C. Provide uninterrupted forwarding service

    D. Inspect packets for malicious activity

    E. Ensure timely data transfer between layers

Exploring network communications (2)

1. Which two statements about the purpose of the OSI model are accurate? *(Choose two)*

    A. Defines the network functions that occur at each layer

    B. Facilitates an understanding of how information travels throughout a network

    C. Changes in one layer do not impact other layer

    D. Ensures reliable data delivery through its layered approach

2. What is the primary function of a Layer 3 device?

    A. To analyze traffic and drop unauthorized traffic from the Internet

    B. To transmit wireless traffic between hosts

    C. To forward traffic within the same broadcast domain

    D. To pass traffic between different networks

Introducing Local Area Networks (3)

1. What are two functions of a Layer 2 switch? *(Choose two)*

    A. Makes forwarding decisions based on the MAC address of a packet

    B. Selects the best route between networks on a WAN

    C. Moves packets within a VLAN

    D. Moves packets between different VLANs

    E. Acts as a central point for association and authentication servers

2. Which two devices handle the transmission of data to endpoint devices based on network information? *(choose two)*

    A. Switch

    B. Server

    C. Router

    D. IP phone

    E. Printer

3. What device connects multiple computers in a Local Area Network and operates at the Data Link layer of the OSI model?

    A. Router

    B. Switch

    C. Hub

    D. Firewall

Introducing Cisco IOS software (2)

1. Which protocol is used for secure remote CLI access?

    A. HTTP

    B. Telnet

    C. SSH

    D. HTTPS

2. A network analyst is tasked with configuring the date and time on a router using EXEC mode. The date must be set to January 1,2020 and the time must be set to 12:00 am. What command should be used?

  A. clock summer-time date

  B. clock set

  C. clock time zone

  D. clock summer-time recurring

Exploring Connection Media (4)

1. What are two reasons that cause late collisions to increment on an Ethernet interface? *(Choose two)*

  A. When the sending device waits 15 seconds before sending the frame again

  B. When the cable length limits are exceeded

  C. When one side of the connection is configured for half-duplex

  D. When Carrier Sense Multiple Access/Collision Detection is used

  E. When a collision occurs after the 32nd byte of a frame has been transmitted

2. *Refer to the exhibit.*

```
SW1#show ip interface brief
Interface         IP-Address    OK? Method Status Protocol
FastEthernet0/1   unassigned    YES manual down    down

SW1#show interface fa0/1 status
Port      Name  Status      Vlan   Duplex   Speed  Type
Fa0/1           notconnect  1      a-full   a-100  10/100BaseTX
```

What is the cause of the issue?

  A. STP

  B. Shutdown command

  C. Port security

  D. Wrong cable type

3. What are two similarities between UTP Cat 5e and Cat 6a cabling? ***(Choose two)***

    A. Both support runs of up to 100 meters.

    B. Both support runs of up to 55 meters.

    C. Both operate at a frequency of 500 MHz.

    D. Both support speeds of at least 1 Gigabit.

    E. Both support speeds up to 10 Gigabit.

4. How do UTP and STP cables compare?

    A. STP cables are cheaper to produce and easier to install and UTP cables are more expensive and harder to install.

    B. UTP cables are less prone to crosstalk and interference and STP cables are more prone to crosstalk and interference.

    C. UTP cables provide faster and more reliable data transfer rates and STP cables are slower and less reliable.

    D. STP cables are shielded and protect against electromagnetic interference and UTP lacks the same protection against electromagnetic interference.

Understanding Ethernet Frame Structure (4)

1. A switch is forwarding a frame out of all interfaces except the interface that received the frame. What is the technical term for this process?

    A. CDP

    B. Multicast

    C. Flooding

    D. ARP

2. What is the default behavior of a Layer 2 switch when a frame with an unknown destination MAC address is received?

    A. The Layer 2 switch drops the received frame

    B. The Layer 2 switch floods packets to all ports except the receiving port in the given VLAN

    C. The Layer 2 switch sends a copy of a packet to CPU for destination MAC address learning

    D. The Layer 2 switch forwards the packet and adds the destination MAC address to Its MAC address table

3. When a switch receives a frame for a known destination MAC address, how is the frame handed?

    A. Flooded to all ports except the one from which it originated

    B. Broadcast to all ports

    C. Forwarded to the first available port

    D. Sent to the port identified for the known MAC address

4. Which three statements about MAC addresses are correct? *(Choose three)*

    A. To communicate with other devices on a network, a network device must have a unique MAC address

    B. The MAC address is also referred to as the IP address

    C. The MAC address of a device must be configured in the Cisco IOS CLI by a user with administrative privileges

    D. A MAC address contains two main components, the first of which identifies the manufacturer of the hardware and the second of which uniquely identifies the hardware

    E. An example of a MAC address is 0A:26:B8:D6:65:90

    F. A MAC address contains two main components, the first of which identifies the network on which the host resides and the second of which uniquely identifies the host on the network

Operating a Cisco Switch (3)

1. How can a switch be initially configured?

    A. AUX port

    B. Console port

    C. Serial port

    D. Tenet

2. What action does the switch perform during the boot sequence to verify its proper operation?

    A. BOOST

    B. POST

    C. RUN

    D. TEST

2. Which command provides information on the switch hardware and software?

    A. show running-config

    B. show interfaces

    C. show version

    D. show startup-config

Exploring the TCP/IP Internet Layer (4)

1. Which function does the range of private IPv4 addresses perform?

    A. Allows multiple companies to each use the same addresses without conflicts

    B. Provides a direct connection for hosts from outside of the enterprise network

    C. Ensures that NAT is not required to reach the internet with private range addressing

    D. Enables secure communications to the internet for all external hosts

2. *Refer to the exhibit.*

    10.10.225.0/28   10.10.225.16/28   10.10.225.64/28   20 Hosts
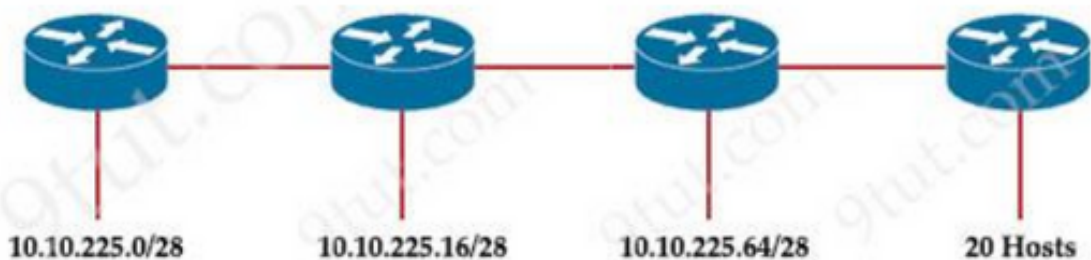
An engineer must add a subnet for a new office that will add 20 users to the network. Which IPv4 network and subnet mask combination does the engineer assign to minimize wasting addresses?

    A. 10.10.225.48 255.255.255.240

    B. 10.10.225.32 255.255.255.240

    C. 10.10.225.48 255.255.255.224

    D. 10.10.225.32 255.255.255.224

3. Which network allows devices to communicate without the need to access the Internet?

    A. 172.9.0.0/16

    B. 172.28.0.0/16

    C. 192.0.0.0/8

    D. 209.165.201.0/24

4. An engineer must configure a /30 subnet between two routers. Which usable IP address and subnet mask combination meets this criteria?

    A. interface e0/0

    ip address 172.16.1.4 255.255.255.248

    B. interface e0/0

    ip address 10.2.1.3 255.255.255.252

    C. interface e0/0

    ip address 192.168.1.1 255.255.255.248

    D. interface e0/0

    ip address 209.165.201.2 255.255.255.252

Exploring the TCP/IP Network and Application Layers (4)

1. How do TCP and UDP differ in the way that they establish a connection between two endpoints?

    A. TCP uses synchronization packets, and UDP uses acknowledgment packets

    B. UDP uses SYN, SYN ACK and FIN bits in the frame header while TCP uses SYN, SYN ACK and ACK bits

    C. UDP provides reliable message transfer and TCP is a connectionless protocol

    D. TCP uses the three-way handshake and UDP does not guarantee message delivery

2. How do TCP and UDP differ in the way they guarantee packet delivery?

    A. TCP uses checksum, acknowledgement, and retransmissions, and UDP uses checksums only.

    B. TCP uses two-dimensional parity checks, checksums, and cyclic redundancy checks and UDP uses retransmissions only.

    C. TCP uses checksum, parity checks, and retransmissions, and UDP uses acknowledgements only.

    D. TCP uses retransmissions, acknowledgement and parity checks and UDP uses cyclic redundancy checks only.

3. What is the difference regarding reliability and communication type between TCP and UDP?

- A. TCP is reliable and is a connection-oriented protocol UDP is not reliable and is a connectionless protocol
- B. TCP is not reliable and is a connection-oriented protocol; UDP is reliable and is a connectionless protocol
- C. TCP is not reliable and is a connectionless protocol; UDP is reliable and is a connection-oriented protocol
- D. TCP is reliable and is a connectionless protocol; UDP is not reliable and is a connection-oriented protocol

4. What is a DNS lookup operation?

- A. Serves requests over destination port 53
- B. DNS server pings the destination to verify that it is available
- C. DNS server forwards the client to an alternate IP address when the primary IP is down
- D. Responds to a request for IP address to domain name resolution to the DNS server

The Importance of Routing (4)

1. Which statement about static and dynamic routes is true?

- A. Dynamic routes are manually configured by a network administrator, while static routes are automatically learned and adjusted by a routing protocol
- B. Static routes are manually configured by a network administrator, while dynamic routes are automatically learned and adjusted by a routing protocol
- C. Static routes tell the router how to forward packets to networks that are not directly connected, while dynamic routes tell the router how to forward packets to networks that are directly connected
- D. Dynamic routes tell the router how to forward packets to networks that are not directly connected, while static routes tell the router how to forward packets to networks that are directly connected

2. Router A learns the same route from two different neighbors, one of the neighbor routers is an OSPF neighbor and the other is an EIGRP neighbor. What is the administrative distance of the route that will be installed in the routing table?

- A. 20
- B. 90
- C. 110
- D. 115

3. Which attribute does a router use to select the best path when two or more different routes to the same destination exist from two different routing protocols?

    A. Dual algorithm

    B. Metric

    C. Administrative distance

    D. Hop count

4. What are two reasons for an engineer to configure a floating static route? (Choose two)

    A. To automatically route traffic on a secondary path when the primary path goes down

    B. To route traffic differently based on the source IP of the packet

    C. To enable fallback static routing when the dynamic routing protocol fails

    D. To support load balancing via static routing

    E. To control the return path of traffic that is sent from the router

Operating a Cisco Router (2)

1. What is the purpose of the loopback interface on a Cisco router?

    A. To connect the router to external networks

    B. To test and troubleshoot network connectivity

    C. To establish a physical link to endpoint devices

    D. To optimize data transmission between routers

2. Which command configures the 192.168.1.1/24 IP address on the FastEthernet0/1 interface?

    A. Router1(config-if)#ip-address 192.168.1.1

    B. Router1(config-if)#ip-address 192.168.1.1 255.255.255.0

    C. Router1(config-if)#ip address 192.168.1.1 255.255.255.0

    D. Router1(config-)#ip address 192.168.1.1 255.255.255.0 FastEthernet0/1

Discovering Connected Devices (3)

1. Which command is used to enable LLDP globally on a Cisco router?

    A. lldp run

    B. lldp enable

    C. lldp transmit

    D. cdp run

    E. cdp enable

2. How can the Cisco Discovery Protocol be used?

    A. To allow a switch to discover the devices that are connected to its ports

    B. To determine the hardware platform of the device

    C. To determine the IP addresses of connected Cisco devices

    D. All of the above

3. In a CDP environment, what happens when the CDP interface on an adjacent device is configured without an IP address?

    A. CDP operates normally, but it cannot provide any information for that neighbor.

    B. CDP operates normally, but it cannot provide IP address information for that neighbor.

    C. CDP uses the IP address of another interface for that neighbor.

    D. CDP becomes inoperable on that neighbor.
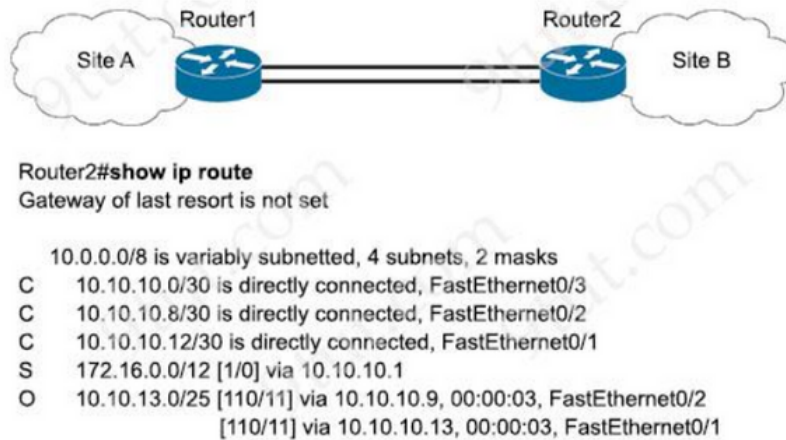

Exploring the Functionalities of DHCP (3)

1. What are two roles of the Dynamic Host Configuration Protocol (DHCP)? (Choose two)

    A. The DHCP server offers the ability to exclude specific IP addresses from a pool of IP addresses

    B. The DHCP client can request up to four DNS server addresses

    C. The DHCP server assigns IP addresses without requiring the client to renew them

    D. The DHCP server leases client IP addresses dynamically

    E. The DHCP client maintains a pool of IP addresses it can assign

2. Which type of information resides on a DHCP server?

    A. A list of the available IP addresses in a pool

    B. A list of public IP addresses and their corresponding names

    C. Usernames and passwords for the end users in a domain

    D. A list of statically assigned MAC addresses

3. What is a DHCP client?

    A. A host that is configured to request an IP address automatically

    B. A router that statically assigns IP addresses to hosts

    C. A server that dynamically assigns IP addresses to hosts

    D. A workstation that requests a domain name associated with its IP address

Exploring the Packet Delivery Process (3)

1. *Refer to the exhibit.*


```
Router2#show ip route
Gateway of last resort is not set

     10.0.0.0/8 is variably subnetted, 4 subnets, 2 masks
C       10.10.10.0/30 is directly connected, FastEthernet0/3
C       10.10.10.8/30 is directly connected, FastEthernet0/2
C       10.10.10.12/30 is directly connected, FastEthernet0/1
S       172.16.0.0/12 [1/0] via 10.10.10.1
O       10.10.13.0/25 [110/11] via 10.10.10.9, 00:00:03, FastEthernet0/2
                      [110/11] via 10.10.10.13, 00:00:03, FastEthernet0/1
```

User traffic originating within site B is failing to reach an application hosted on IP address 192.168.0.10, which is located within site A. What is determined by the routing table?

    A. The traffic to 192.168.0.10 requires a static route to be configured in router1

    B. The lack of a default route prevents delivery of the traffic

    C. The default gateway for site B is configured incorrectly.

    D. The traffic is blocked by an implicit deny in an ACL on router2.

2. Refer to the exhibit. PC1 is trying to ping PC3 for the first time and sends out an ARP to S1. Which action is taken by S1?
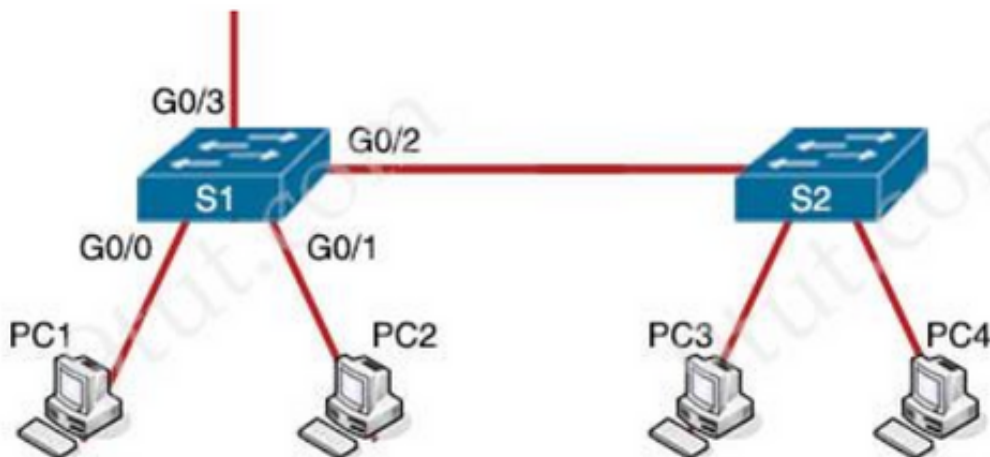
A. It forwards it out G0/3 only

B. It is flooded out every port except G0/0

C. It drops the frame

D. It forwards it out interface G0/2 only

3. What is the primary function of a default gateway in a computer network?

A. Assigning IP addresses to devices

B. Filtering network traffic

C. Forwarding data outside the local network

D. Managing wireless connections

Implementing Static Routing (3)

1. *Refer to the exhibit.*
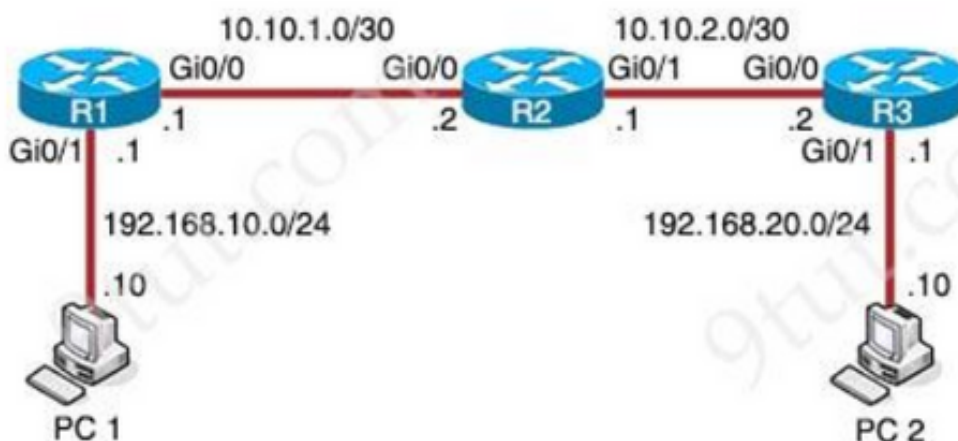
When PC 1 sends a packet to PC2, the packet has which source and destination IP address when it arrives at interface Gi0/0 on router R2?

A. Source 192.168.10.10 and destination 10.10.2.2

B. Source 192.168.20.10 and destination 192.168.20.1

C. Source 192.168.10.10 and destination 192.168.20.10

D. Source 10.10.1.1 and destination 10.10.2.2

2. When a floating static route is configured, which action ensures that the backup route is used when the primary route falls?

    A. The floating static route must have a higher administrative distance than the primary route so it is used as a backup

    B. The administrative distance must be higher on the primary route so that the backup route becomes secondary

    C. The floating static route must have a lower administrative distance than the primary route so it is used as a backup

    D. The default-information originate command must be configured for the route to be installed into the routing table

3. Router R1 must send all traffic without a matching routing-table entry to 192.168.1.1. Which configuration accomplishes this task?

    A.R1#config t

    R1(config)#ip routing

    R1(config)#ip route default-route 192.168.1.1

    B.R1#config t

    R1(config)#ip routing

    R1(config)#ip route 192.168.1.1 0.0.0.0 0.0.0.0

    C.R1#config t

    R1(config)#ip routing

    R1(config)#ip route 0.0.0.0 0.0.0.0 192.168.1.1

    D.R1#config t

    R1(config)#ip routing

    R1(config)#ip default-gateway 192.168.1.1

OSPF Configuration (5)

1. When OSPF learns multiple paths to a network, how does it select a route?

    A. It multiple the active K value by 256 to calculate the route with the lowest metric.

    B. For each existing interface, it adds the metric from the source router to the destination to calculate the route with the lowest bandwidth.

    C. It divides a reference bandwidth of 100 Mbps by the actual bandwidth of the existing interface to calculate the router with the lowest cost.

    D. It count the number of hops between the source router and the destination to determine the router with the lowest metric

2. Which step in the link-state routing process is described by a router sending Hello packets out all of the OSPF-enabled interfaces?

    A. Electing the designated router

    B. Establishing neighbor adjacencies

    C. Injecting the default route

   D. Exchanging link-state advertisements

3. *Refer to the exhibit.*
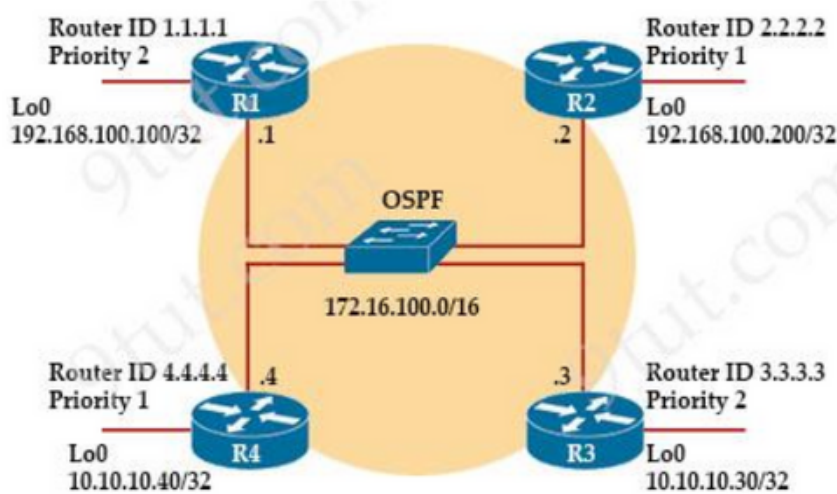
If the switch reboots and all routers have to re-establish OSPF adjacencies, which routers will become the new DR and BDR?

    A. Router R3 will become the DR and router R1 will become the BDR.

    B. Router R4 will become the DR and router R3 will become the BDR.

    C. Router R1 will become the DR and router R2 will become the BDR.

    D. Router R3 will become the DR and router R2 will become the BDR.

4. An engineer must configure an OSPF neighbor relationship between router R1 and R3. The authentication configuration has been configured and the connecting interfaces are in the same 192.168.1.0/30 subnet. What are the next two steps to complete the configuration? (Choose two)

    A. Configure the hello and dead timers to match on both sides

    B. Configure the same process ID for the router OSPF process

    C. Configure the same router ID on both routing processes

    D. Configure the interfaces as OSPF active on both sides

    E. Configure both interfaces with the same area ID

5. *Refer to the exhibit.*
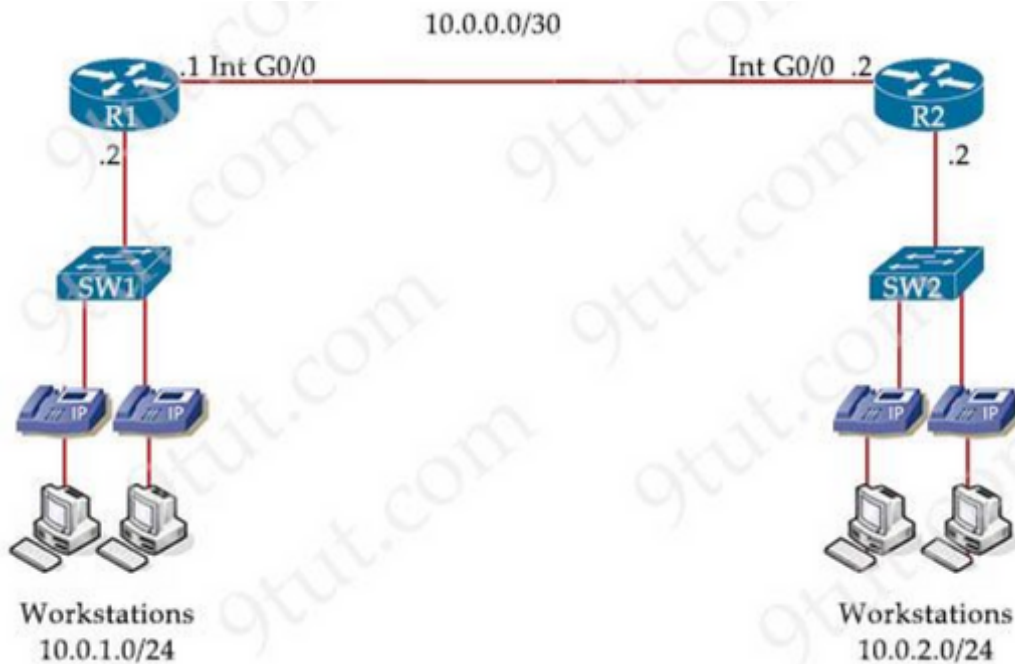
An engineer is asked to configure router R1 so that it forms an OSPF single-area neighbor relationship with R2. Which command sequence must be implemented to configure the router?

A. router ospf 10

network 10.0.0.0 0.0.0.3 area 0

network 10.0.2.0 0.0.0.255 area 0

B. router ospf 10

network 10.0.0.0 0.0.0.3 area 0

network 10.0.1.0 0.0.0.255 area 0

C. router ospf 10

network 10.0.0.0 0.0.0.3 area 0

network 10.0.2.0 255.255.255.0 area 0

D. router ospf 10

network 10.0.0.0 0.0.0.252 area 0

network 10.0.1.0 0.0.0.255 area 0

Understanding IPv6 (3)

1. Which IPv6 address type provides communication between subnets and cannot route on the Internet?

     A. Global unicast

     B. Unique local

     C. Link-local

     D. Multicast

2. Which command automatically generates an IPv6 address from a specified IPv6 prefix and MAC address of an interface?

     A. ipv6 address dhcp

     B. ipv6 address 2001:068:5:112::64 eui-64

     C. ipv6 address autoconfig

     D. ipv6 address 2001:068:5:112:2/64 link-local

3. Which action must be taken to assign a global unicast IPv6 address on an interface that is derived from the MAC address of that interface?

     A. Configure a stateful DHCPv6 server on the network

     B. Enable SLAAC on an interface

     C. Disable the EUI-64 bit process

     D. Explicitly assign a link-local address


Exploring Troubleshooting (3)

1. Which troubleshooting approach spans from the physical layer to the application layer in the OSI model?

     A. Top-down

     B. Bottom-up

     C. Divide-and-conquer

     D. Follow-the-path

2. When troubleshooting network connectivity issues on Cisco devices, if the problem is related to duplex mismatches, what action should be taken?

     A. Configure a different IP address for the affected device.

     B. Replace the network cables with new ones.

     C. Set the duplex mode on both devices to either "auto" or match manually.

     D. Restart the affected Cisco device.

3. What is the primary purpose of a ping test?

    A. To measure download speed

    B. To check network connectivity

    C. To analyze website content

    D. To scan for malware

Exploring VLANs and Trunks (4)

1. Two switches are connected and using Cisco Dynamic Trunking Protocol. SW1 is set to Dynamic Desirable. What is the result of this configuration?

    A. The link is in a downstate.

    B. The link is in an error disables stale

    C. The link is becomes an access port

    D. The link becomes a trunkport

2. What occurs to frames during the process of frame flooding?

    A. Frames are sent to all ports, including those that are assigned to other VLANs

    B. Frames are sent to every port on the switch that has a matching entry in MAC address table

    C. Frames are sent to every port on the switch in the same VLAN except from the originating port

    D. Frames are sent to every port on the switch in the same VLAN

3. An engineer must configure Interswitch VLAN communication between a Cisco switch and a third party switch. Which action should be taken?

    A. Configure IEEE 802.1p

    B. Configure IEEE 802.1q

    C. Configure ISL

    D. Configure DSCP

4. *Refer to the exhibit.*
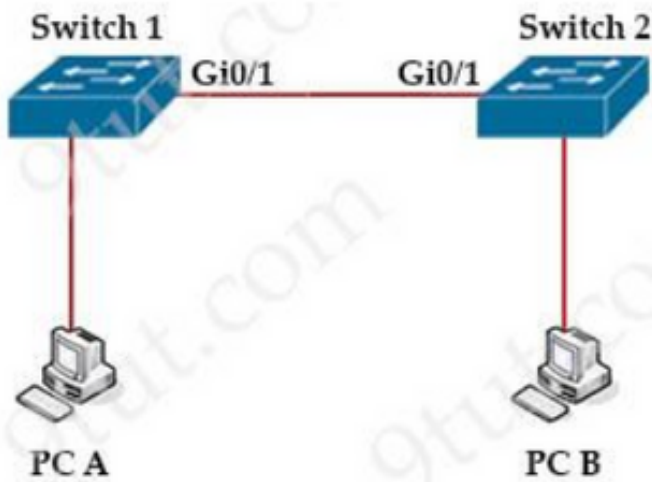
The network administrator wants VLAN 67 traffic to be untagged between Switch 1 and Switch 2 while all other VLANs are to remain tagged. Which command accomplishes this task?

> A. switchport access vlan 67
>
> B. switchport trunk allowed vlan 67
>
> C. switchport private-vlan association host 67
>
> D. switchport trunk native vlan 67

Introducing Layer 2 Redundancy (4)

1. Which result occurs when PortFast is enabled on an interface that is connected to another switch?

> A. Spanning tree may fail to detect a switching loop in the network that causes broadcast storms
>
> B. VTP is allowed to propagate VLAN configuration information from switch to switch automatically.
>
> C. Root port choice and spanning tree recalculation are accelerated when a switch link goes down
>
> D. After spanning tree converges PortFast shuts down any port that receives BPDUs.

2. What criteria is used first during the root port selection process?

    A. lowest neighbor's port ID

    B. lowest path cost to the root bridge

    C. lowest neighbor's bridge ID

    D. local port ID

3. How does STP prevent forwarding loops at OSI Layer 2?

    A. TTL

    B. MAC address forwarding

    C. Collision avoidance

    D. Port blocking

4. When using Rapid PVST+, which command guarantees the switch is always the root bridge forVLAN 200?

    A. spanning-tree vlan 200 priority 38572422

    B. spanning-tree vlan 200 priority 614440

    C. spanning-tree vlan 200 priority 0

    D. spanning-tree vlan 200 root primary

Exploring Layer 3 Redundancy (3)

1. What does the implementation of a first-hop redundancy protocol protect against on a network?

    A. BGP neighbor flapping

    B. Default gateway failure

    C. root-bridge loss

    D. spanning-tree loops

2. Which two outcomes are predictable behaviors for HSRP? (Choose two)

    A. The two routers share a virtual IP address that is used as the default gateway for devices on the LAN

    B. The two routers negotiate one router as the active router and the other as the standby router

    C. Each router has a different IP address both routers act as the default gateway on the LAN, and traffic is load balanced between them

    D. The two routers synchronize configurations to provide consistent packet forwarding

    E. The two routed share the same IP address, and default gateway traffic is load-balanced between them

3. Which MAC address is recognized as a VRRP virtual address?

    A. 0000.5E00.010a

    B. 0005.3711.0975

    C. 0000.0C07.AC99

    D. 0007.C070.AB01

Improving Redundancy with EtherChannel (3)

1. Which two statements about EtherChannel technology are true? *(Choose two)*

    A. EtherChannel provides increased bandwidth by bundling existing FastEthernet or Gigabit Ethernet interfaces into a single EtherChannel

    B. STP does not block EtherChannel links

    C. You can configure multiple EtherChannel links between two switches, using up to a limit of sixteen physical ports

    D. EtherChannel does not allow load sharing of traffic among the physical links within the EtherChannel

    E. EtherChannel allows redundancy in case one or more links in the EtherChannel fail

2. Which two command sequences must you configure on a switch to establish a Layer 3 EtherChannel with an open-standard protocol? (Choose two)

A. interface GigabitEthernet0/0/1

channel-group 10 mode active

B. interface GigabitEthernet0/0/1

channel-group 10 mode auto

C. interface GigabitEthernet0/0/1

channel-group 10 mode on

D. interface port-channel 10

no switchport

ip address 172.16.0.1 255.255.255.0

E. interface port-channel 10

switchport

switchport mode trunk

3. Which mode must be used to configure EtherChannel between two switches without using a negotiation protocol?

A. on

B. auto

C. active

D. desirable

1. *Refer to the exhibit.*

```
interface GigabitEthernet0/1
 ip address 192.168.1.2 255.255.255.0
 ip access-group 2699 in
!
access-list 2699 deny icmp any 10.10.1.0 0.0.0.255 echo
access-list 2699 deny ip any 10.20.1.0 0.0.0.255
access-list 2699 permit ip any 10.10.1.0 0.0.0.255
access-list 2699 permit tcp any 10.20.1.0 0.0.0.127 eq 22
```

A network administrator must permit SSH access to remotely manage routers in a network. The operations team resides on the 10.20.1.0/25 network. Which command will accomplish this task?

      A. access-list 2699 permit udp 10.20.1.0 0.0.0.255

      B. no access-list 2699 deny tcp any 10.20.1.0 0.0.0.127 eq 22

      C. access-list 2699 permit tcp any 10.20.1.0 0.0.0.255 eq 22

      D. no access-list 2699 deny ip any 10.20.1.0 0.0.0.255

2. *Refer to the exhibit.*
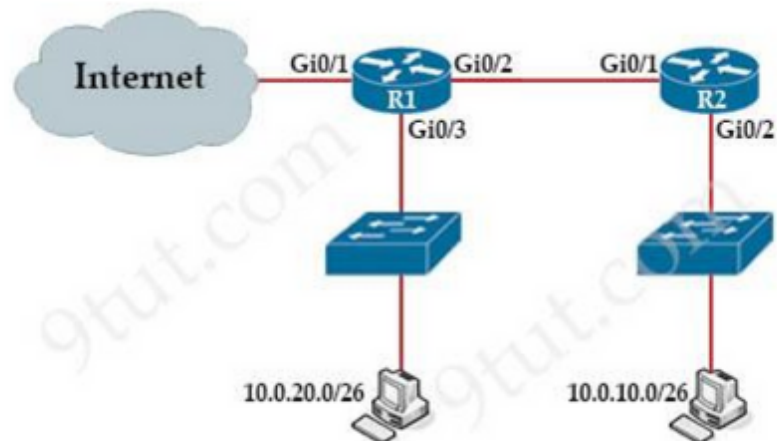

```
R2#config t
R2(config)#access-list 101 deny tcp 10.0.20.0 0.0.0.63 10.0.10.0 0.0.0.63 eq smtp
R2(config)#access-list 101 deny tcp 10.0.20.0 0.0.0.63 10.0.10.0 0.0.0.63 eq www
R2(config)#int gi0/2
R2(config-if)#ip access-group 101 in
```

An extended ACL has been configured and applied to router R2. The configuration failed to work as intended. Which two changes stop outbound traffic on TCP ports 25 and 80 to 10.0.20.0/26 from the 10.0.10.0/26 subnet while still allowing all other traffic? (Choose two)

    A. Add a "permit ip any any" statement to the beginning of ACL 101 for allowed traffic

    B. Add a "permit ip any any" statement at the end of ACL 101 for allowed traffic

    C. The source and destination IPs must be swapped in ACL 101

    D. The ACL must be configured the Gi0/2 interface inbound on R1

    E. The ACL must be moved to the Gi0/1 interface outbound on R2

3. While examining excessive traffic on the network, it is noted that all incoming packets on an interface appear to be allowed even though an IPv4 ACL is applied to the interface. Which two misconfigurations cause this behavior? (Choose two)

    A. The packets fail to match any permit statement

    B. A matching permit statement is too high in the access list

    C. A matching permit statement is too broadly defined

    D. The ACL is empty

    E. A matching deny statement is too high in the access list

Implementing Network Address Translation (3)

1. Which type of address is the public IP address of a NAT device?

      A. outside global

      B. outside local

      C. inside global

      D. inside local

      E. outside public

      F. inside public

2. Which statement about the nature of NAT overload is true?

      A. Applies a one-to-many relationship to internal IP addresses

      B. Applies a one-to-one relationship to internal IP addresses

      C. Applies a many-to-many relationship to internal IP addresses

      D. Can be configured only on Gigabit interface

3. *Refer to the exhibit.*

```
R1#show ip nat translations
Pro  Inside global      Inside local      Outside local      Outside global
tcp  172.23.104.3:43268 10.4.4.4:43268    172.23.103.10:23   172.23.103.10:23
tcp  172.23.104.4:45507 10.4.4.5:45507    172.23.103.10:80   172.23.103.10:80
```

An engineer configured NAT translations and has verified that the configuration is correct. Which IP address is the source IP?

      A. 10.4.4.4

      B. 10.4.4.5

      C. 172.23.103.10

      D. 172.23.104.4

Cisco Device Management (2)

1. Where the uncompressed Cisco IOS file is located prior to initiation?

      A. RAM

      B. ROM

      C. Flash

      D. NVRAM

2. What is the factory default value of the configuration register?

    A. 0x2122

    B. 0x2142

    C. 0x2101

    D. 0x2102

Exploring Device Monitoring (3)

1. What will happen if you configure the logging trap debug command on a router?

    A. It causes the router to send messages with lower severity levels to the syslog server

    B. It causes the router to send all messages with the severity levels Warning, Error, Critical, and Emergency to the syslog server

    C. It causes the router to send all messages to the syslog server

    D. It causes the router to stop sending all messages to the syslog server

2. Which two pieces of information can you determine from the output of the show ntp status command? *(Choose two)*

    A. Whether the NTP peer is statically configured

    B. The IP address of the peer to which the clock is synchronized

    C. The configured NTP servers

    D. Whether the clock is synchronized

    E. The NTP version number of the peer

3. Which function does an SNMP agent perform?

    A. It sends information about MIB variables in response to requests from the NMS

    B. It coordinates user authentication between a network device and a TACACS+ or RADIUS server

    C. It requests information from remote network nodes about catastrophic system events.

    D. It manages routing between Layer 3 devices in a network

Securing Administrative Access (3)

1. What is the primary difference between AAA authentication and authorization?

    A. Authentication verifies a username and password, and authorization handles the communication between the authentication agent and the user database

    B. Authentication identifies a user who is attempting to access a system, and authorization validates the users password

    C. Authentication identifies and verifies a user who is attempting to access a system, and authorization controls the tasks the user can perform

    D. Authentication controls the system processes a user can access and authorization logs the activities the user initiates

2. A network engineer is replacing the switches that belong to a managed-services client with new Cisco Catalyst switches. The new switches will be configured for updated security standards, including replacing Telnet services with encrypted connections and doubling the modulus size from 1024. Which two commands must the engineer configure on the new switches? *(Choose two)*

    A. transport input ssh

    B. transport input all

    C. crypto key generate rsa general-keys modulus 1024

    D. crypto key generate rsa usage-keys

    E. crypto key generate rsa modulus 2048

3. Which global command encrypt all passwords in the running configuration?

    A. enable secret

    B. enable password-encryption

    C. service password-encryption

    D. password-encrypt

Implementing Device Protection (3)

1. A port security violation has occurred on a switch port due to the maximum MAC address count being exceeded. Which command must be configured to increment the security-violation count and forward an SNMP trap?

    A. switchport port-security violation access

    B. switchport port-security violation restrict

    C. switchport port-security violation protect

    D. switchport port-security violation shutdown

2. What is a practice that protects a network from VLAN hopping attacks?

    A. Change native VLAN to an unused VLAN ID

    B. Enable dynamic ARP inspection

    C. Configure an ACL to prevent traffic from changing VLANs

    D. Implement port security on internet-facing VLANs

3. What are two recommendations for protecting network ports from being exploited when located in an office space outside of an IT closet? *(Choose two)*

    A. Shut down unused ports

    B. Enable the PortFast feature on ports

    C. Implement port-based authentication

    D. Configure ports to a fixed speed

    E. Configure static ARP entries

Exploring Security Threats (3)

1. Which type of attack can be mitigated by dynamic ARP inspection?

    A. Malware

    B. DDoS

    C. Worm

    D. Man-in-the-middle

2. What are two purposes of launching a reconnaissance attack on a network? *(Choose two)*

    A. To prevent other users from accessing the system

    B. To escalate access privileges

    C. To gather information about the network and devices

    D. To scan for accessibility

    E. To retrieve and modify data

3. What is a common characteristic of phishing attacks?

    A. Sending genuine emails from reputable sources

    B. Requesting sensitive information through deceptive means

    C. Providing accurate and transparent information

    D. Conducting regular security audits

Exploring Threat Defense Technologies (5)

1. Which device segregates a network into separate zones that have their own security policies?

     A. IPS

     B. Firewall

     C. Access point

     D. Switch

2. What is the function of Cisco Advanced Malware protection for next-generation IPS?

     A. Authorizing potentially compromised wireless traffic

     B. URL filtering

     C. Authenticating end users

     D. Inspecting specific files and files types for malware

3. What is a characteristic of RSA?

     A. It uses preshared keys for encryption

     B. It is an asymmetric encryption algorithm

     C. It requires both sides to have identical keys for encryption

     D. It is a symmetric decryption algorithm.

4. Which protocol uses the SSL?

     A. HTTP

     B. HTTPS

     C. SSH

     D. Telnet

5. What are two differences between WPA2 and WPA3 wireless security? *(Choose two)*

     A. WPA3 uses SAE for stronger protection than WPA2, which uses AES

     B. WPA2 uses 128-bit key encryption, and WPA3 supports 128-bit and 192-bit key encryption

     C. WPA3 uses AES for stronger protection than WPA2, which uses SAE

     D. WPA3 uses AES for stronger protection than WPA2, which uses TKIP

     E. WPA2 uses 192-bit key encryption, and WPA3 requires 256-bit key encryption

Exploring WAN Technologies (3)

1. Which WAN topology has the highest degree of reliability?

     A. Router-on-a-stick

     B. Point-to-point

     C. Hub-and-spoke

     D. Full mesh

2. Which WAN access technology is preferred for a small office / home office architecture?

     A. Broadband cable access

     B. Frame-relay packet switching

     C. Dedicated point-to-point leased line

     D. Integrated Services Digital Network switching

3. What is a function of a remote access VPN?

     A. Used cryptographic tunneling to protect the privacy of data for multiple users simultaneously

     B. Allows the users to access company internal network resources through a secure tunnel

     C. Used exclusively when a user is connected to a company's internal network

     D. Establishes a secure tunnel between two branch sites

Implementing QoS (2)

1. Which feature or protocol determines whether the QoS on the network is sufficient to support IP services?

     A. LLDP

     B. CDP

     C. IP SLA

     D. EEM

2. What does traffic shaping do to reduce congestion in a network?

     A. Buffers and queues packets

     B. Buffers without queuing packets

     C. Queues without buffering packets

     D. Drops packets

Exploring Wireless Technology (3)

1. Which mode allows access points to be managed by Cisco Wireless LAN Controllers?

    A. Autonomous

    B. Lightweight

    C. Bridge

    D. Mobility express

2. What is a function of Wireless LAN Controller?

    A. Send LWAPP packets to access points

    B. Use SSIDs to distinguish between wireless clients

    C. Register with a single access point that controls traffic between wired and wireless endpoints

    D. Monitor activity on wireless and wired LANs

3. Which two values or settings must be entered when configuring a new WLAN in the Cisco Wireless LAN Controller GUI? *(Choose two)*

    A. Management interface settings

    B. QoS settings

    C. ip address of one or more access points

    D. SSID

    E. Profile name

Network Architecture and Virtualization (3)

1. Which statement identifies the functionality of virtual machines?

    A. Virtualized servers run most efficiently when they are physically connected to a switch that is separate from the hypervisor

    B. The hypervisor can virtualize physical components including CPU, memory, and storage

    C. Each hypervisor can support a single virtual machine and a single software switch

    D. The hypervisor communicates on Layer 3 without the need for additional resources

2. A company has decided to reduce its environmental footprint by reducing energy costs, moving to a smaller facility, and promoting telecommuting. What service or technology would support this requirement?

   A. Cisco ACI

   B. Cloud services

   C. APIC-EM

   D. Data center

3. Which action is taken by the data plane within a network device?

   A. Looks up an egress interface in the forwarding information base

   B. Constructs a routing table based on a routing protocol

   C. Provides CLI access to the network device

   D. Forwards traffic to the next hop

Introducing Intelligent Networks (3)

1. What are two benefits of controller-based networking compared to traditional networking? *(Choose two)*

   A. controller-based increases network bandwidth usage, while traditional lightens the load on the network.

   B. controller-based reduces network configuration complexity, while traditional increases the potential for errors

   C. controller-based inflates software costs, while traditional decreases individual licensing costs

   D. controller-based allows for fewer network failure, while traditional increases failure rates

   E. controller-based provides centralization of key IT functions. While traditional requires distributes management function

2. How do traditional campus device management and Cisco DNA Center device management differ in regards to deployment?

   A. Cisco DNA Center device management can deploy a network more quickly than traditional campus device management

   B. Traditional campus device management allows a network to scale more quickly than with Cisco DNA Center device management

   C. Cisco DNA Center device management can be implemented at a lower cost than most traditional campus device management options

   D. Traditional campus device management schemes can typically deploy patches and updates more quickly than Cisco DNA Center device management

3. What are two benefits of network automation? *(Choose two)*

    A. Reduced operational costs

    B. Reduced hardware footprint

    C. Faster changes with more reliable results

    D. Fewer network failures

    E. Increased network security

Introduction to Functions of Networking (3)

1. Answer: C E
2. Answer: C
3. Answer: C E

Exploring network communications (2)

1. Answer: A B
2. Answer: D

Introducing Local Area Networks (3)

1. Answer: A C
2. Answer: A C
3. Answer: B

Introducing Cisco IOS software (2)

1. Answer: C
2. Answer: B

Exploring Connection Media (4)

1. Answer: B C
2. Answer: D
3. Answer: A D
4. Answer: D

Understanding Ethernet Frame Structure (4)

1. Answer: C
2. Answer: B
3. Answer: D
4. Answer: A D E

Operating a Cisco Switch (3)

1. Answer: B
2. Answer: B
3. Answer: C

Exploring the TCP/IP Internet Layer (4)

1. Answer: A
2. Answer: D
3. Answer: B
4. Answer: D

Exploring the TCP/IP Network and Application Layers (4)

1. Answer: D
2. Answer: A
3. Answer: A
4. Answer: A

The Importance of Routing (4)

1. Answer: B
2. Answer: B
3. Answer: C
4. Answer: A C

Operating a Cisco Router (2)

1. Answer: B
2. Answer: C

Discovering Connected Devices (3)

1. Answer: A
2. Answer: D
3. Answer: C

Exploring the Functionalities of DHCP (3)

1. Answer: A D
2. Answer: A
3. Answer: A

Exploring the Packet Delivery Process (3)

1. Answer: B
2. Answer: B
3. Answer: C

Implementing Static Routing (3)

1. Answer: C
2. Answer: A
3. Answer: C

OSPF Configuration (5)

1. Answer: C
2. Answer: B
3. Answer: A
4. Answer: D E
5. Answer: B

Understanding IPv6 (3)

1. Answer: B
2. Answer: C
3. Answer: B

Exploring Troubleshooting (3)

1. Answer: B
2. Answer: B
3. Answer: B

Exploring VLANs and Trunks (4)

1. Answer: D
2. Answer: C
3. Answer: B
4. Answer: D

Introducing Layer 2 Redundancy (4)

1. Answer: A
2. Answer: B
3. Answer: D
4. Answer: C

Exploring Layer 3 Redundancy (3)

1. Answer: B
2. Answer: A B
3. Answer: A

Improving Redundancy with EtherChannel (3)

1. Answer: A E
2. Answer: A D
3. Answer: A

Understanding Access Control Lists (3)

1. Answer: D
2. Answer: B C
3. Answer: B C

Implementing Network Address Translation (3)

1. Answer: C
2. Answer: A
3. Answer: C

Cisco Device Management (2)

1. Answer: A
2. Answer: D

Exploring Device Monitoring (3)

1. Answer: C
2. Answer: B D
3. Answer: A

Securing Administrative Access (3)

1. Answer: C
2. Answer: A E

3. Answer: C

Implementing Device Protection (3)

1. Answer: B
2. Answer: A
3. Answer: A C

Exploring Security Threats (3)

1. Answer: D
2. Answer: C D
3. Answer: B

Exploring Threat Defense Technologies (5)

1. Answer: B
2. Answer: D
3. Answer: B
4. Answer: B
5. Answer: A B

Exploring WAN Technologies (3)

1. Answer: D
2. Answer: A
3. Answer: B

Implementing QoS (2)

1. Answer: C
2. Answer: A

Exploring Wireless Technology (3)

1. Answer: B
2. Answer: A
3. Answer: D E

Network Architecture and Virtualization (3)

1. Answer: B
2. Answer: B
3. Answer: D

Introducing Intelligent Networks (3)

1. Answer: B E
2. Answer: A
3. Answer: A C