100-105

Number: 000-000
Passing Score: 800
Time Limit: 120 min
File Version: 1.0

100-105

Interconnecting Cisco Networking Devices Part 1 (ICND)

Version 12.0

QUESTION 1
Which address type does a switch use to make selective forwarding decisions?

A. destination IP address
B. source MAC address
C. source IP address
D. source and destination IP address
E. destination MAC address

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Switches analyze the destination MAC to make its forwarding decision since it is a layer 2 device.
Routers use the destination IP address to make forwarding decisions.

QUESTION 2
In which two ways does TCP differ from UDP? (Choose two.)

A. TCP provides synchronized communication.
B. TCP segments are essentially datagrams.
C. TCP provides sequence numbering of packets.
D. TCP uses broadcast delivery.
E. TCP provides best effort delivery.

Correct Answer: AC
Section: (none)
Explanation

Explanation/Reference:
Explanation:
TCP differs from UDP in the following ways: TCP provides best effort delivery.
TCP provides synchronized communication. TCP segments are essentially datagrams.
TCP provides sequence numbering of packets. TCP uses broadcast delivery.

QUESTION 3
Under which circumstance should a network administrator implement one-way NAT?

A. when the network must route UDP traffic
B. when traffic that originates outside the network must be routed to internal hosts
C. when traffic that originates inside the network must be routed to internal hosts
D. when the network has few public IP addresses and many private IP addresses require outside access

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
NAT operation is typically transparent to both the internal and external hosts. Typically the internal host is

aware of the true IP address and TCP or UDP port of the external host. Typically the NAT device may function as the default gateway for the internal host. However the external host is only aware of the public IP address for the NAT device and the particular port being used to communicate on behalf of a specific internal host.
NAT and TCP/UDP

"Pure NAT", operating on IP alone, may or may not correctly parse protocols that are totally concerned with IP information, such as ICMP, depending on whether the payload is interpreted by a host on the "inside" or "outside" of translation. As soon as the protocol stack is traversed, even with such basic protocols as TCP and UDP, the protocols will break unless NAT takes action beyond the network layer. IP packets have a checksum in each packet header, which provides error detection only for the header. IP datagrams may become fragmented and it is necessary for a NAT to reassemble these fragments to allow correct recalculation of higher-level checksums and correct tracking of which packets belong to which connection. The major transport layer protocols, TCP and UDP, have a checksum that covers all the data they carry, as well as the TCP/UDP header, plus a "pseudo-header" that contains the source and destination IP addresses of the packet carrying the TCP/UDP header. For an originating NAT to pass TCP or UDP successfully, it must recompute the TCP/UDP header checksum based on the translated IP addresses, not the original ones, and put that checksum into the TCP/UDP header of the first packet of the fragmented set of packets. The receiving NAT must recompute the IP checksum on every packet it passes to the destination host, and also recognize and recompute the TCP/UDP header using the retranslated addresses and pseudo-header. This is not a completely solved problem. One solution is for the receiving NAT to reassemble the entire segment and then recompute a checksum calculated across all packets.
The originating host may perform Maximum transmission unit (MTU) path discovery to determine the packet size that can be transmitted without fragmentation, and then set the don't fragment (DF) bit in the appropriate packet header field. Of course, this is only a one- way solution, because the responding host can send packets of any size, which may be fragmented before reaching the NAT.

QUESTION 4
Which destination IP address can a host use to send one message to multiple devices across different subnets?

A. 172.20.1.0
B. 127.0.0.1
C. 192.168.0.119
D. 239.255.0.1

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Multicast is a networking protocol where one host can send a message to a special multicast IP address and one or more network devices can listen for and receive those messages.
Multicast works by taking advantage of the existing IPv4 networking infrastructure, and it does so in something of a weird fashion. As you read, keep in mind that things are a little confusing because multicast was "shoe-horned" in to an existing technology. For the rest of this article, let's use the multicast IP address of 239.255.0.1.

QUESTION 5
Which option must occur before a workstation can exchange HTTP packets with a web server?

A. An ICMP connection must be established between the workstation and the web server.
B. A UDP connection must be established between the workstation and its default gateway.
C. A TCP connection must be established between the workstation and its default gateway.
D. A UDP connection must be established between the workstation and the web server.
E. An ICMP connection must be established between the workstation and its default gateway.

F. A TCP connection must be established between the workstation and the web server.

Correct Answer: F
Section: (none)
Explanation

Explanation/Reference:
Explanation:
HTTP uses TCP port 80.
http://pentestlab.wordpress.com/2012/03/05/common-tcpip-ports/

QUESTION 6
Refer to the exhibit.

```
Router#configure terminal
Router(config) #vlan 10
Router(config-vlan) #do show vlan
```

Which statement describes the effect of this configuration?

A. The VLAN 10 VTP configuration is displayed.
B. The VLAN 10 spanning-tree output is displayed.
C. The VLAN 10 configuration is saved when the router exits VLAN configuration mode.
D. VLAN 10 is added to the VLAN database.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
With the configuration above, when we type "do show vlan" we would not see VLAN 10 in the VLAN database because it has not been created yet. VLAN 10 is only created when we exits VLAN configuration mode (with "exit" command).

QUESTION 7
DRAG DROP
Drag and drop each cable type from the left onto the type of connection for which it is best suited on the right.

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 8
Which route source code represents the routing protocol with a default administrative distance of 90 in the routing table?

A. S
B. E
C. D
D. R
E. O

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
S Static
E EGP
D EIGRP
R RIP
O OSPF
Default Administrative distance of EIGRP protocol is 90 then answer is C.

```
Router# sh ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, L1 - IS-IS level-1, L2 - IS-IS level-2, ia - IS-IS inter area
       * - candidate default, U - per-user static route, o - ODR
       P - periodic downloaded static route
```

Default Distance Value TableThis table lists the administrative distance default values of the protocols that Cisco supports:
Route Source
Default Distance Values
Connected interface
Static route

Enhanced Interior Gateway Routing Protocol (EIGRP) summary route External Border Gateway Protocol (BGP)
Internal EIGRP
IGRP
OSPF
Intermediate System-to-Intermediate System (IS-IS) Routing Information Protocol (RIP) Exterior Gateway Protocol (EGP)
On Demand Routing (ODR)
External EIGRP
Internal BGP
Unknown*

QUESTION 9
Refer to the exhibit.

A TFTP server has recently been instated in the Atlanta office. The network administrator is located in the NY office and has made a console connection to the NY router. After establishing the connection they are unable to backup the configuration file and iOS of the NY router to the TFTP server. What is the cause of this problem?

A. The TFTP server has an incorrect subnet mask.
B. The TFTP server has an incorrect IP address.
C. The network administrator computer has an incorrect IP address.
D. The NY router has an incorrect subnet mask.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The subnet mask of the TFTP server needs to be in the same subnet as the default gateway.

QUESTION 10
On a Cisco switch, which protocol determines if an attached VoIP phone is from Cisco or from another vendor?

A. CDP
B. RTP
C. UDP
D. TCP

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The Cisco Unified IP Phone uses CDP to communicate information such as auxiliary VLAN ID, per port power

management details, and Quality of Service (QoS) configuration information with the Cisco Catalyst switch.

QUESTION 11
Which statement about a router on a stick is true?

A. Its data plane routes traffic for a single VLAN over two or more switches.
B. It uses multiple subinterfaces of a single interface to encapsulate traffic for different VLANs on the same subnet
C. It requires the native VLAN to be disabled.
D. It uses multiple subinterfaces of a single interface to encapsulate traffic for different VLANs.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
https://www.freeccnaworkbook.com/workbooks/ccna/configuring-inter-vlan-routing-router-on-a-stick

QUESTION 12
Which routing protocol has the smallest default administrative distance?

A. IBGP
B. OSPF
C. IS-IS
D. EIGRP
E. RIP

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
http://www.cisco.com/c/en/us/support/docs/ip/border-gateway-protocol-bgp/15986-admin-distance.html

Route Source	Default Distance Values
Connected interface	0
Static route	1
Enhanced Interior Gateway Routing Protocol (EIGRP) summary route	5
External Border Gateway Protocol (BGP)	20
Internal EIGRP	90
IGRP	100
OSPF	110
Intermediate System-to-Intermediate System (IS-IS)	115
Routing Information Protocol (RIP)	120
Exterior Gateway Protocol (EGP)	140
On Demand Routing (ODR)	160
External EIGRP	170
Internal BGP	200
Unknown*	255

QUESTION 13

Two hosts are attached to a switch with the default configuration. Which statement about the configuration is true?

A. IP routing must be enabled to allow the two hosts to communicate.
B. The two hosts are in the same broadcast domain.
C. The switch must be configured with a VLAN to allow the two hosts to communicate.
D. Port security prevents the hosts from connecting to the switch.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 14
Which MTU size can cause a baby giant error?

A. 1500
B. 9216
C. 1600
D. 1518

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Standard Ethernet frame MTU is 1500 bytes. This does not include the Ethernet header and Cyclic Redundancy Check (CRC) trailer, which is 18 bytes in length, to make the total Ethernet frame size of 1518. In this document, MTU size or packet size refers only to Ethernet payload. Ethernet frame size refers to the whole Ethernet frame, including the header and the trailer. Baby giant frames refer to Ethernet frame size up to 1600 bytes, and jumbo frame refers to Ethernet frame size up to 9216 bytes.
Reference: http://www.cisco.com/c/en/us/support/docs/switches/catalyst-4000-series-switches/29805-175.html

QUESTION 15
Which statement about static routes is true?

A. The source interface can be configured to make routing decisions.
B. A subnet mask is entered for the next-hop address.
C. The subnet mask is 255.255.255.0 by default.
D. The exit interface can be specified to indicate where the packets will be routed.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Static routing can be used to define an exit point from a router when no other routes are available or necessary. This is called a default route.

QUESTION 16
Which two statements describe the IP address 10.16.3.65/23? (Choose two.)

A. The lowest host address in the subnet is 10.16.2.1 255.255.254.0.
B. The last valid host address in the subnet is 10.16.2.254 255.255.254.0.
C. The network is not subnetted.
D. The broadcast address of the subnet is 10.16.3.255 255.255.254.0.
E. The subnet address is 10.16.3.0 255.255.254.0.

Correct Answer: AD
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The mask 255.255.254.0 (/23) used with a Class A address means that there are 15 subnet bits and 9 host bits. The block size in the third octet is 2 (256 - 254). So this makes the subnets in 0, 2, 4, 6, etc., all the way to 254. The host 10.16.3.65 is in the 2.0 subnet. The next subnet is 4.0, so the broadcast address for the 2.0 subnet is 3.255. The valid host addresses are 2.1 through 3.254

QUESTION 17
Which NAT type is used to translate a single inside address to a single outside address?

A. dynamic NAT
B. NAT overload
C. PAT
D. static NAT

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Network address translation (NAT) is the process of modifying IP address information in IP packet headers while in transit across a traffic routing device.
There are two different types of NAT:
NAT
PAT

Static NAT is used to statically map a single IP address on the inside to a single outside IP address.

QUESTION 18
Which name is a valid hostname for a switch?

A. 5witch-Cisco
B. Switch-Cisco!
C. 5witchCisc0
D. SwitchCisc0

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Hostnames can’t start with a number and can’t have special characters (bangs/exclamation) (but can have a

dash).
A starts with a number.
B has a bang at the end.
C starts with a number.
Only D is correct.

QUESTION 19
Which function enables an administrator to route multiple VLANs on a router?

A. IEEE 802.1X
B. HSRP
C. port channel
D. router on a stick

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 20
Which NTP command configures the local device as an NTP reference clock source?

A. ntp peer
B. ntp broadcast
C. ntp master
D. ntp server

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 21
Which RFC was created to alleviate the depletion of IPv4 public addresses?

A. RFC 4193
B. RFC 1519
C. RFC 1518
D. RFC 1918

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
RFC 1918 references private IP addressing schemes such as NAT. RFC 1518 simply covers the usage of CIDR, or how to use address blocks more efficiently while RFC 1918 is specifically referred to as a stopgap to avert the crisis of IPv4 addresses.

QUESTION 22

Instructions
For both the Router and the Switch the simulated console mode needs to start and remain in enabled mode.

RouterA and SwitchA have been configured to operate in a private network which will connect to the Internet. You have been asked to review the configuration prior to cabling and implementation.

This task requires the use of various IOS commands to access and inspect the running configuration of RouterA and SwitchA. No configuration changes are necessary.

You will connect to RouterA and SwilchA via the console devices that are attached to each.

There are 4 multiple-choice questions with this task. Be sure to answer all of them before leaving this item. In order to score the maximum points you will need to have accessed both SwitchA and RouterA.

NOTE: The configuration command has been disabled for both the router and switch in this simulation.

Which two of the following are true regarding the configuration of RouterA? (Choose two.)

A. at least 5 simultaneous remote connections are possible
B. only telnet protocol connections to RouterA are supported
C. remote connections to RouterA using telnet will succeed
D. console line connections will never time out due to inactivity
E. since DHCP is not used on Fa0/1 there is no need to use the NAT protocol

Correct Answer: AC
Section: (none)
Explanation

Explanation/Reference:
Explanation:

Here is the RouterA configuration:
for Router
!
!
no service password-encryption
!
hostname Router1
enable secret 5 $1$14mlkm52….
ip domain-name cisco.com
ip ssh version 2
!
!
username ciscouser password 0 cisco
banner login ^c
********** welcome to router1 If you encountered any problem, please consult the administrator **********
^c
!
line con 0
password cisco
line vty 0 4
password 4thfcvcf
no login
transport input telnet ssh
for switch
!
!
no service password-encryption
!
hostname switch1
enable password cisco
username ciscouser password 0 cisco
ip domain-name cisco.com
banner login ^c
********** welcome to router1 If you encountered any problem, please consult the administrator **********
^c
line con 0
line vty 0 4
login login local
transport input ssh
line vty 5 15
login local
transport input ssh

A is correct as we can telnet from line 0 to line 4 (line vty o 4).

We can use both telnet and SSH to connect to this router (transport input telnet ssh) -> B is not correct.
C is correct as we can telnet to it.
D is not correct because by default, the timeout is set to 10 minutes on both the console and the vty ports.
E is not correct as NAT can be used even DHCP is not used.

QUESTION 23
A workstation has just resolved a browser URL to the IP address of a server. Which protocol will the workstation now use to determine the destination MAC address to be placed into frames directed toward the sever?

A. ARP
B. RARP
C. DNS
D. DHCP
E. HTTP

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 24
What is the default lease time for a DHCP binding?

A. 24 hours
B. 12 hours
C. 48 hours
D. 36 hours

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 25
When a router makes a routing decision for a packet that is received from one network and destined to another, which portion of the packet does it replace?

A. Layer 2 frame header and trailer
B. Layer 3 IP address
C. Layer 5 session
D. Layer 4 protocol

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
What does a router do with a packet received from one network and destined for another network? The router performs the following three major steps:

Step 1. De-encapsulates the Layer 3 packet by removing the Layer 2 frame header and trailer.
Step 2. Examines the destination IP address of the IP packet to find the best path in the routing table.
Step 3. If the router finds a path to the destination, it encapsulates the Layer 3 packet into a new Layer 2 frame and forwards the frame out the exit interface.

Reference: http://www.ciscopress.com/articles/article.asp?p=2180208&seqNum=8

QUESTION 26
Which device allows users to connect to the network using a single or double radio?

A. access point
B. switch
C. wireless controller
D. firewall

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 27
Which entity assigns IPv6 addresses to end users?

A. ICANN
B. APNIC
C. RIR
D. ISPs

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Before going forward that far it is important to note that like IPv4, the placement of the devices that will be allocated with IPv6 addresses can affect the numbers and the method of assignment.

If the IPv6 addresses in question will be used solely for the internal purposes of a business and do not need to be directly routable to the public Internet, then the Unique Local IPv6 range (RFC 4193) and assignment method can be used; these would be the equivalent of RFC 1918 IPv4 private address ranges. If, however, the IPv6 addresses are intended to be directly routable on the public Internet, a range must be assigned (just like with IPv4) by an Internet Service Provider (ISP), or a Regional Internet Registry (RIR) if allocating for an ISP.

As of this writing, the Unique Local address range includes all addresses that fall under the FC00::/7 prefix (they begin with '1111110' in binary), while the Global Unicast address range includes all addresses that fall under the 2000::/3 prefix (they begin with '001' in binary). Global Unicast ranges are divided by a number of different entities; at the top of these entities is Internet Corporation for Assigned Names and Numbers (ICANN) who assigns addresses to the RIR's (for all regional registries except APNIC), who will in turn assign addresses to ISP's who will in turn assign addresses to End Users (EU).

QUESTION 28
Refer to the exhibit.

Which command is simplest to configure routing between the regional office network 10.89.0.0/20 and the corporate network?

A. router2(config)#ip route 0.0.0.0 0.0.0.0 10.89.16.1
B. router2(config)#ip route 10.89.3.0 255.255.0.0 10.89.16.2
C. router1(config)#ip route 10.89.0.0 255.255.240.0 10.89.16.1
D. router1(config)#ip route 10.89.0.0 255.255.240.0 10.89.16.2

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The fourth command makes it possible for all hosts beyond R2 and all hosts beyond R1 to interact with each other, hence it is the simplest technique.

QUESTION 29
What is one requirement for interfaces to run IPv6?

A. An IPv6 address must be configured on the interface.
B. An IPv4 address must be configured.
C. Stateless autoconfiguration must be enabled after enabling IPv6 on the interface
D. IPv6 must be enabled with the **ipv6 enable** command in global configuration mode.

Correct Answer: A
Section: (none)

Explanation

Explanation/Reference:
Explanation:
To use IPv6 on your router, you must, at a minimum, enable the protocol and assign IPv6 addresses to your interfaces.

QUESTION 30
Refer to the exhibit.

The MAC address table is shown in its entirety. The Ethernet frame that is shown arrives at the switch. What two operations will the switch perform when it receives this frame? (Choose two.)

A. The switch will not forward a frame with this destination MAC address.
B. The frame will be forwarded out of all the ports on the switch.
C. The MAC address of ffff.ffff.ffff will be added to the MAC address table.
D. The frame will be forwarded out of all the active switch ports except for port fa0/0.
E. The MAC address of 0000.00aa.aaaa will be added to the MAC Address Table.
F. The frame will be forwarded out of fa0/0 and fa0/1 only.

Correct Answer: DE
Section: (none)
Explanation

Explanation/Reference:
Explanation:
If the switch already has the MAC address in its table for the destination, it will forward the frame directly to

the destination port. If it was not already in its MAC table, then the source MAC is added to the MAC address table and frame would have been flooded out all ports except for the port that it came from.

QUESTION 31
Which network topology allows all traffic to flow through a central hub?

A. bus
B. star
C. mesh
D. ring

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Star topology is the arrangement of the computers in such a way that all the terminals or work stations are connected to the main central hub. The terminals are referred to as the clients and the main central hub is referred to as the switch. It is the easiest way of arranging a network topology with one central main computer connected to several other functioning terminals. All the network traffic passes through the central device and all the data transmission occurs through the main switch as well as all the hub acts as the signal repeater. One advantage of such an arrangement is the simplicity and the ease with which you can add additional nodes. The disadvantage is that if an error occurs in the central hub the whole network shuts down.

Reference: http://www.certiology.com/computing/computer-networking/network-topology.html

QUESTION 32
Which two statements are true regarding ICMP packets? (Choose two.)

A. They are encapsulated within IP datagrams.
B. They guarantee datagram delivery.
C. TRACERT uses ICMP packets.
D. They acknowledge receipt of TCP segments.
E. They are encapsulated within UDP datagrams.

Correct Answer: AC
Section: (none)
Explanation

Explanation/Reference:

Explanation:
Ping may be used to find out whether the local machines are connected to the network or whether a remote site is reachable. This tool is a common network tool for determining the network connectivity which uses ICMP protocol instead of TCP/IP and UDP/IP. This protocol is usually associated with the network management tools which provide network information to network administrators, such as ping and traceroute (the later also uses the UDP/IP protocol).
ICMP is quite different from the TCP/IP and UDP/IP protocols. No source and destination ports are included in its packets. Therefore, usual packet-filtering rules for TCP/IP and UDP/IP are not applicable. Fortunately, a special "signature" known as the packet's Message type is included for denoting the purposes of the ICMP packet. Most commonly used message types are namely, 0, 3, 4, 5, 8, 11, and 12 which represent echo reply, destination unreachable, source quench, redirect, echo request, time exceeded, and parameter problem respectively.
In the ping service, after receiving the ICMP "echo request" packet from the source location, the destination.

QUESTION 33
Which method does a connected trunk port use to tag VLAN traffic?

A. IEEE 802.1w
B. IEEE 802.1D
C. IEEE 802.1Q
D. IEEE 802.1p

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
IEEE 802.1Q is the networking standard that supports virtual LANs (VLANs) on an Ethernet network. When a frame enters the VLAN-aware portion of the network (a trunk link, for example), a VLAN ID tag is added to represent the VLAN membership of that frame. The picture below shows how VLAN tag is added and removed while going through the network.
http://www.cisco.com/c/en/us/support/docs/lan-switching/8021q/17056-741-4.html

QUESTION 34
On which type of device is every port in the same collision domain?

A. a router
B. a Layer 2 switch
C. switch
D. a hub
E. a Layer 3 switch

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The definition of a collision domain is a set of LAN devices whose frames could collide with one another. This happens with hubs, bridges, repeaters and wireless access points as only one device can send and receive. If more than one device tries sending or receiving, the information is lost and irrecoverable it will need to be resent. This can slow down network performance along with making it a security threat.

QUESTION 35

Which option is the default switch port port-security violation mode?

A. shutdown
B. protect
C. shutdown vlan
D. restrict

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Shutdown - This mode is the default violation mode; when in this mode, the switch will automatically force the switchport into an error disabled (err-disable) state when a violation occurs. While in this state, the switchport forwards no traffic. The switchport can be brought out of this error disabled state by issuing the errdisable recovery cause CLI command or by disabling and reenabling the switchport.

Shutdown VLAN - This mode mimics the behavior of the shutdown mode but limits the error disabled state the specific violating VLAN.

QUESTION 36
Refer to the exhibit.

An administrator cannot connect from R1 to R2. To troubleshoot this problem, the administrator has entered the command shown in the exhibit. Based on the output shown, what could be the problem?

A. The serial interface is configured for the wrong frame size.

B. The serial interface does not have a cable attached.
C. The serial interface has the wrong type of cable attached.
D. The serial interface has a full buffer.
E. The serial interface is configured for half duplex.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Since the output is not forthcoming it shows that the type of cable attached is wrong, though the cable is connected since it shows the cable type. According to the figure DTE cable should connect to R1 on interface but while examining using show controllers serial 0/0 command it showing that a DCE is connected so the wrong type of cable is being used.

QUESTION 37
Which statement about native VLAN traffic is true?

A. Cisco Discovery Protocol traffic travels on the native VLAN by default.
B. Traffic on the native VLAN is tagged with 1 by default.
C. Control plane traffic is blocked on the native VLAN.
D. The native VLAN is typically disabled for security reasons.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The native VLAN is the VLAN that is configured for packets that don't have a tag. The default native VLAN on all Cisco Switches is VLAN 1. It is always enabled by default. These settings can all be changed: That is: you can designate a different VLAN as the native VLAN, disable VLAN 1, etc. Knowing that, we can eliminate D) as the correct answer because it is enabled by default. We can also eliminate B) because Native VLAN packets don't get tags by default (you can change this). Finally, Control Plane traffic is never blocked on Native VLAN 1, and even if you change the Native VLAN, the control plane traffic still comes across VLAN 1.

QUESTION 38
Which value is indicated by the next hop in a routing table?

A. preference of the route source
B. IP address of the remote router for forwarding the packets
C. how the route was learned
D. exit interface IP address for forwarding the packets

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
From official Odom cisco book is Routes for remote subnets typically list both an outgoing interface and next-hop router IP address. Routes for subnets that connect directly to the router list only the outgoing interface, because packets to these destinations do not need to be sent to another router.

QUESTION 39
Which component of the routing table ranks routing protocols according to their preferences?

A. administrative distance
B. next hop
C. metric
D. routing protocol code

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Administrative distance - This is the measure of trustworthiness of the source of the route. If a router learns about a destination from more than one routing protocol, administrative distance is compared and the preference is given to the routes with lower administrative distance. In other words, it is the believability of the source of the route.

QUESTION 40
At which layer of the OSI model does the protocol that provides the information that is displayed by the **show cdp neighbors** command operate?

A. data link
B. application
C. network
D. transport
E. physical

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
CDP is a device discovery protocol that runs over Layer 2 (the data link layer) on all Cisco-manufactured devices (routers, bridges, access servers, and switches) and allows network management applications to discover Cisco devices that are neighbors of already known devices.
With CDP, network management applications can learn the device type and the Simple Network Management Protocol (SNMP) agent address of neighboring devices running lower-layer, transparent protocols.

QUESTION 41
Which statement about unicast frame forwarding on a switch is true?

A. The TCAM table stores destination MAC addresses.
B. If the destination MAC address is unknown, the frame is flooded to every port that is configured in the same VLAN except on the port that it was received on.
C. The CAM table is used to determine whether traffic is permitted or denied on a switch.
D. The source address is used to determine the switch port to which a frame is forwarded.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 42
By default, how many MAC addresses are permitted to be learned on a switch port with port-security enabled?

A. 8
B. 2
C. 1
D. 0

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Reference: http://www.cisco.com/c/en/us/td/docs/switches/lan/catalyst6500/ios/12-2SX/configuration/guide/book/port_sec.pdf

QUESTION 43
Which dynamic routing protocol uses only the hop count to determine the best path to a destination?

A. IGRP
B. RIP
C. EIGRP
D. OSPF

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:

Determining the best path involves the evaluation of multiple paths to the same destination network and selecting the optimum or shortest path to reach that network. Whenever multiple paths to the same network exist, each path uses a different exit interface on the router to reach that network.
The best path is selected by a routing protocol based on the value or metric it uses to determine the distance to reach a network. A metric is the quantitative value used to measure the distance to a given network. The best path to a network is the path with the lowest metric.

Dynamic routing protocols typically use their own rules and metrics to build and update routing tables. The routing algorithm generates a value, or a metric, for each path through the network. Metrics can be based on either a single characteristic or several characteristics of a path. Some routing protocols can base route selection on multiple metrics, combining them into a single metric. The following lists some dynamic protocols and the metrics they use:
Routing Information Protocol (RIP): Hop count
Open Shortest Path First (OSPF): Cisco routers use a cost based on cumulative bandwidth from source to destination
Enhanced Interior Gateway Routing Protocol (EIGRP): Bandwidth, delay, load, reliability

QUESTION 44
Refer to the exhibit.

The exhibit is showing the topology and the MAC address table. Host A sends a data frame to host D. Which option describes what the switch will do when it receives the frame from host A?

A. The switch will flood the frame out of all ports except for port Fa0/3.
B. The switch will add the destination address of the frame to the MAC address table and forward the frame to host D.
C. The switch will add the source address and port to the MAC address table and forward the frame to host D.
D. The switch will discard the frame and send an error message back to host A.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
When switch receives the data frame from the host not having the MAC address already on the MAC table, it will add the MAC address to source port on MAC address table and sends the data frame.

QUESTION 45
Refer to the exhibit.

If the **resume** command is entered after the sequence that is shown in the exhibit, which router prompt will be displayed?

A. Router2#
B. Router2>
C. Router1#
D. Router1>

Correct Answer: B

Section: (none)
Explanation

Explanation/Reference:
Explanation:
If the enter command is issued the session will resume back to what it was, which is the Router2> prompt.

QUESTION 46
Which feature allows a device to use a switch port that is configured for half-duplex to access the network?

A. CSMA/CD
B. IGMP
C. port security
D. split horizon

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Ethernet began as a local area network technology that provided a half-duplex shared channel for stations connected to coaxial cable segments linked with signal repeaters. In this appendix, we take a detailed look at the half-duplex shared- channel mode of operation, and at the CSMA/CD mechanism that makes it work. In the original half-duplex mode, the CSMA/CD protocol allows a set of stations to compete for access to a shared Ethernet channel in a fair and equitable manner. The protocol's rules determine the behavior of Ethernet stations, including when they are allowed to transmit a frame onto a shared Ethernet channel, and what to do when a collision occurs. Today, virtually all devices are connected to Ethernet switch ports over full-duplex media, such as twisted-pair cables. On this type of connection, assuming that both devices can support the full-duplex mode of operation and that Auto-Negotiation (AN) is enabled, the AN protocol will automatically select the highest-performance mode of operation supported by the devices at each end of the link. That will result in full-duplex mode for the vast majority of Ethernet connections with modern interfaces that support full duplex and AN.

QUESTION 47
Which component of a routing table entry represents the subnet mask?

A. routing protocol code
B. prefix
C. metric
D. network mask

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
IP Routing Table Entry Types
An entry in the IP routing table contains the following information in the order presented:
Network ID. The network ID or destination corresponding to the route. The network ID can be class-based, subnet, or supernet network ID, or an IP address for a host route.
Network Mask. The mask that is used to match a destination IP address to the network ID.
Next Hop. The IP address of the next hop.
Interface. An indication of which network interface is used to forward the IP packet.
Metric. A number used to indicate the cost of the route so the best route among possible multiple routes to the

same destination can be selected. A common use of the metric is to indicate the number of hops (routers crossed) to the network ID.

Routing table entries can be used to store the following types of routes:
Directly Attached Network IDs.
Routes for network IDs that are directly attached. For directly attached networks, the Next Hop field can be blank or contain the IP address of the interface on that network.
Remote Network IDs.
Routes for network IDs that are not directly attached but are available across other routers. For remote networks, the Next Hop field is the IP address of a local router in between the forwarding node and the remote network.
Host Routes.
A route to a specific IP address.
Host routes allow routing to occur on a per- IP address basis. For host routes, the network ID is the IP address of the specified host and the network mask is 255.255.255.255.
Default Route.
The default route is designed to be used when a more specific network ID or host route is not found. The default route network ID is 0.0.0.0 with the network mask of 0.0.0.0.

QUESTION 48
Which technology supports the stateless assignment of IPv6 addresses?

A. DNS
B. DHCPv6
C. DHCP
D. autoconfiguration

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Stateless Auto Configuration is an important feature offered by the IPv6 protocol. It allows the various devices attached to an IPv6 network to connect to the Internet using the Stateless Auto Configuration without requiring any intermediate IP support in the form of a Dynamic Host Configuration Protocol (DHCP) server.
http://ipv6.com/articles/general/Stateless-Auto-Configuration.htm

QUESTION 49
When enabled, which feature prevents routing protocols from sending hello messages on an interface?

A. virtual links
B. passive-interface
C. directed neighbors
D. OSPF areas

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
You can use the passive-interface command in order to control the advertisement of routing information. The command enables the suppression of routing updates over some interfaces while it allows updates to be exchanged normally over other interfaces. With most routing protocols, the passive-interface command

restricts outgoing advertisements only. But, when used with Enhanced Interior Gateway Routing Protocol (EIGRP), the effect is slightly different. This document demonstrates that use of the passive-interface command in EIGRP suppresses the exchange of hello packets between two routers, which results in the loss of their neighbor relationship. This stops not only routing updates from being advertised, but it also suppresses incoming routing updates. This document also discusses the configuration required in order to allow the suppression of outgoing routing updates, while it also allows incoming routing updates to be learned normally from the neighbor.

QUESTION 50
Refer to the exhibit.

If CDP is enabled on all devices and interfaces, which devices will appear in the output of a **show cdp neighbors** command issued from R2?

A. R1, S1, S2, R3 and S3
B. R2 and R3
C. R3 and S2
D. R1 and R3
E. R1, S1, S2, and R3

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
A Cisco device enabled with CDP sends out periodic interface updates to a multicast address in order to make itself known to neighbors. Since it is a layer two protocol, these packets are not routed. So the devices detected would be immediate connected neighbors.

QUESTION 51
Configuration of which option is required on a Cisco switch for the Cisco IP phone to work?

A. PortFast on the interface
B. the interface as an access port to allow the voice VLAN ID
C. a voice VLAN ID in interface and global configuration mode
D. Cisco Discovery Protocol in global configuration mode

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
The switch has two VLANs: one carries data traffic and one carries voice traffic. The switch port can be either access VLAN or trunk VLAN, but you need to configure a voice VLAN to carry the voice traffic.

QUESTION 52
Which two of these functions do routers perform on packets? (Choose two.)

A. update the Layer 3 headers of outbound packets so that the packets are properly directed to valid next hops
B. update the Layer 2 headers of outbound packets with the MAC addresses of the next hops
C. examine the Layer 3 headers of inbound packets and use that information to determine the complete paths along which the packets will be routed to their ultimate destinations
D. examine the Layer 3 headers of inbound packets and use that information to determine the next hops for the packets
E. examine the Layer 2 headers of inbound packets and use that information to determine the next hops for the packets
F. update the Layer 3 headers of outbound packets so that the packets are properly directed to their ultimate destinations

Correct Answer: BD
Section: (none)
Explanation

Explanation/Reference:
Explanation:
This is the basic function of the router to receive incoming packets and then forward them to their required destination. This is done by reading layer 3 headers of inbound packets and update the info to layer 2 for further hopping.

QUESTION 53
Which statement about the inside interface configuration in a NAT deployment is true?

A. It is defined globally.
B. It identifies the location of source addresses for outgoing packets to be translated using access lists or route maps.
C. It must be configured if static NAT is used.
D. It identifies the public IP address that traffic will use to reach the Internet.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
This module describes how to configure Network Address Translation (NAT) for IP address conservation and how to configure inside and outside source addresses. This module also provides information about the benefits of configuring NAT for IP address conservation. NAT enables private IP internetworks that use nonregistered IP addresses to connect to the Internet. NAT operates on a device, usually connecting two networks, and translates the private (not globally unique) addresses in the internal network into legal addresses before packets are forwarded onto another network. NAT can be configured to advertise to the outside world only one address for the entire network. This ability provides additional security by effectively hiding the entire internal network behind that one address. NAT is also used at the enterprise edge to allow

internal users access to the Internet and to allow Internet access to internal devices such as mail servers.

QUESTION 54
You have configured the host computers on a campus LAN to receive their DHCP addresses from the local router to be able to browse their corporate site. Which statement about the network environment is true?

A. It supports a DNS server for use by DHCP clients.
B. Two host computers may be assigned the same IP address.
C. The DNS server must be configured manually on each host.
D. The domain name must be configured locally on each host computer.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
DHCP supports configuring a domain name to assign to the DHCP clients. For example:
Router(config)#ip dhcp pool CLIENTS
Router(dhcp-config)#name server 8.8.8.8

QUESTION 55
The command **ip route 192.168.100.160 255.255.255.224 192.168.10.2** was issued on a router. No routing protocols or other static routes are configured on the router. Which statement is true about this command?

A. The interface with IP address 192.168.10.2 is on this router.
B. The command sets a gateway of last resort for the router.
C. Packets that are destined for host 192.168.100.160 will be sent to 192.168.10.2.
D. The command creates a static route for all IP traffic with the source address 192.168.100.160.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Static routes specific the next hop router for packets destined to the specified network. In this case, traffic destined for any host in the 192.168.100.160/27 network will be forwarded to the router at 192.168.10.2

QUESTION 56
Which three statements are true about the operation of a full-duplex Ethernet network? (Choose three.)

A. The host network card and the switch port must be capable of operating in full-duplex mode.
B. Ethernet hub ports are preconfigured for full-duplex mode.
C. A dedicated switch port is required for each full-duplex node.
D. There are no collisions in full-duplex mode.
E. In a full-duplex environment, the host network card must check for the availability of the network media before transmitting.

Correct Answer: ACD
Section: (none)
Explanation

Explanation/Reference:
Explanation:

Half-duplex Ethernet is defined in the original 802.3 Ethernet and Cisco says you only use one wire pair with a digital signal running in both directions on the wire. It also uses the CSMA/CD protocol to help prevent collisions and to permit retransmitting if a collision does occur. If a hub is attached to a switch, it must operate in half-duplex mode because the end stations must be able to detect collisions. Half-duplex Ethernet--typically 10BaseT--is only about 30 to 40 percent efficient as Cisco sees it, because a large 10BaseT network will usually only give you 3- to 4Mbps--at most. Full-duplex Ethernet uses two pairs of wires, instead of one wire pair like half duplex. Also, full duplex uses a point-to-point connection between the transmitter of the transmitting device and the receiver of the receiving device, which means that with full-duplex data transfer, you get a faster data transfer compared to half duplex. And because the transmitted data is sent on a different set of wires than the received data, no collisions occur. The reason you don't need to worry about collisions is because now Full-duplex Ethernet is like a freeway with multiple lanes instead of the single-lane road provided by half duplex. Full-duplex Ethernet is supposed to offer 100 percent efficiency in both directions; this means you can get 20Mbps with a 10Mbps Ethernet running full duplex, or 200Mbps for FastEthernet.

QUESTION 57
Which Ethernet interface command is present when you boot a new Cisco router for the first time?

A. speed 100
B. shutdown
C. ip address 192.168.1.1 255.255.255.0
D. duplex half

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 58
After you configure a default route to the Internet on a router, the route is missing from the routing table. Which option describes a possible reason for the problem?

A. The next-hop address is unreachable.
B. The default route was configured on a passive interface.
C. Dynamic routing is disabled.
D. Cisco Discovery Protocol is disabled on the interface used to reach the next hop.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 59
Which table displays the MAC addresses that are learned on a switch?

A. FIB
B. ARP
C. TCAM
D. CAM

Correct Answer: D
Section: (none)

Explanation

Explanation/Reference:
Explanation:
The table is built by recording the source address and inbound port of all frames. As frames arrive on switch ports, the source MAC addresses are learned and recorded in the CAM table. The port of arrival and the VLAN are both recorded in the table, along with a timestamp. If a MAC address learned on one switch port has moved to a different port, the MAC address and timestamp are recorded for the most recent arrival port. Then, the previous entry is deleted. If a MAC address is found already present in the table for the correct arrival port, only its timestamp is updated.

QUESTION 60
Why would a network administrator configure port security on a switch?

A. to limit the number of Layer 2 broadcasts on a particular switch port
B. to prevent unauthorized Telnet access to a switch port
C. to prevent unauthorized hosts from accessing the LAN
D. block unauthorized access to the switch management interfaces

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
You can use the port security feature to restrict input to an interface by limiting and identifying MAC addresses of the stations allowed to access the port. When you assign secure MAC addresses to a secure port, the port does not forward packets with source addresses outside the group of defined addresses. If you limit the number of secure MAC addresses to one and assign a single secure MAC address, the workstation attached to that port is assured the full bandwidth of the port. If a port is configured as a secure port and the maximum number of secure MAC addresses is reached, when the MAC address of a station attempting to access the port is different from any of the identified secure MAC addresses, a security violation occurs. Also, if a station with a secure MAC address configured or learned on one secure port attempts to access another secure port, a violation is flagged.

QUESTION 61
Refer to the exhibit.

A network has been planned as shown. Which three statements accurately describe the areas and devices in the network plan? (Choose three.)

A. Area 2 contains a Layer 2 device.
B. Network Device B is a hub.
C. Network Device A is a hub.
D. Network Device A is a switch.
E. Area 1 contains a Layer 2 device.
F. Network Device B is a switch.

Correct Answer: BDE
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Switches use a separate collision domain for each port, so device A must be a switch. Hubs, however, place all ports in the same collision domain so device B is a hub. Switches reside in layer 2 while hubs are layer 1 devices.

QUESTION 62
Which two things does a router do when it forwards a packet? (Choose two.)

A. determines the next hop on the path
B. switches the packet to the appropriate outgoing interfaces
C. computes the destination host address
D. forwards ARP requests
E. updates the destination IP address

Correct Answer: AB
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Without following these two processes namely switching the packet to appropriate interface and telling the packet where to go by providing it with a destination IP address, the purpose of the same would not be solved.

QUESTION 63
Which two statements describe the operation of the CSMA/CD access method? (Choose two.)

A. After a collision, all stations run a random backoff algorithm. When the backoff delay period has expired, all stations have equal priority to transmit data.
B. In a CSMA/CD collision domain, multiple stations can successfully transmit data simultaneously.
C. After a collision, the station that detected the collision has first priority to resend the lost data.
D. The use of hubs to enlarge the size of collision domain is one way to improve the operation of the CSMA/CD access method.
E. After a collision, all stations involved run an identical backoff algorithm and then synchronize with each other prior to transmitting data.
F. In a CSMA/CD collision domain, stations must wait until media is not in use before transmitting.

Correct Answer: AF

Section: (none)
Explanation

Explanation/Reference:
Explanation:
Ethernet networking uses Carrier Sense Multiple Access with Collision Detect (CSMA/CD), a protocol that helps devices share the bandwidth evenly without having two devices transmit at the same time on the network medium. CSMA/CD was created to overcome the problem of those collisions that occur when packets are transmitted simultaneously from different nodes. And trust me, good collision management is crucial, because when a node transmits in a CSMA/CD network, all the other nodes on the network receive and examine that transmission. Only bridges and routers can effectively prevent a transmission from propagating throughout the entire network! So, how does the CSMA/CD protocol work? Like this: when a host wants to transmit over the network, it first checks for the presence of a digital signal on the wire. If all is clear (no other host is transmitting), the host will then proceed with its transmission. But it doesn't stop there. The transmitting host constantly monitors the wire to make sure no other hosts begin transmitting. If the host detects another signal on the wire, it sends out an extended jam signal that causes all nodes on the segment to stop sending data (think, busy signal). The nodes respond to that jam signal by waiting a while before attempting to transmit again. Backoff algorithms determine when the colliding stations can retransmit. If collisions keep occurring after 15 tries, the nodes attempting to transmit will then time out.

QUESTION 64
Which set of conditions comprises a successful ping attempt between two connected routers configured with IP addresses on the same subnet?

A. The destination host receives an echo reply from the source host within one second and the source host receives an echo request from the destination host.
B. The destination host receives an echo request from the source host within one second.
C. The destination host receives an echo reply from the source host within one second and the source host receives an echo reply from the destination host within two seconds.
D. The destination host receives an echo request from the source host and the source host receives an echo request from the destination host within one second.
E. The destination host receives an echo request from the source host and the source host receives an echo reply from the destination host within two seconds.

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:

QUESTION 65
Which NTP concept indicates the distance between a device and the reliable time source?

A. clock offset
B. stratum
C. reference
D. dispersion

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 66
Which statement is a Cisco best practice for switch port security?

A. Vacant switch ports must be shut down.
B. Empty ports must be enabled in VLAN 1.
C. VLAN 1 must be configured as the native VLAN.
D. Err-disabled ports must be configured to automatically re-enable.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 67
Which statement about unique local IPv6 addresses is true?

A. Summarization is not supported.
B. They require all prefixes to be unique.
C. Their global IDs are assigned sequentially.
D. They are routable to the public Internet.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 68
Which three statements accurately describe CDP? (Choose three.)

A. CDP can discover Cisco devices that are not directly connected.
B. CDP is a network layer protocol.
C. CDP can discover directly connected neighboring Cisco devices.
D. CDP is a datalink layer protocol.
E. CDP is a Cisco proprietary protocol.
F. CDP is an IEEE standard protocol.

Correct Answer: CDE
Section: (none)
Explanation

Explanation/Reference:
Explanation:
CDP (Cisco Discovery Protocol) is a proprietary protocol designed by Cisco to help administrators collect information about both locally attached and remote devices. By using CDP, you can gather hardware and protocol information about neighbor devices containing useful info for troubleshooting and documenting the network.

QUESTION 69
Which statement describes the effect of the **overload** keyword in the **ip nat inside source list 90 interface ethernet 0/0 overload** command?

A. Addresses that match access list **inside** are translated to the IP address of the Ethernet 0/0 interface.
B. Hosts that match access list **inside** are translated to an address in the Ethernet 0/0 network.
C. Hosts on the Ethernet 0/0 LAN are translated to the address pool in access list **90**.
D. Addresses that match access list **90** are translated through PAT to the IP address of the Ethernet 0/0 interface.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 70
Refer to the exhibit.

The two routers have had their startup configurations cleared and have been restarted. At a minimum, which option below must the administrator do to enable CDP to exchange information between R1 and R2?

A. Configure the router with the **cdp enable** command.
B. Configure IP addressing and **no shutdown** commands on both the R1 and R2 fa0/1 interfaces.
C. Configure IP addressing and **no shutdown** commands on either of the R1 or R2 fa0/1 interfaces.
D. Enter **no shutdown** commands on the R1 and R2 fa0/1 interfaces.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
If the no shutdown commands are not entered, then CDP cannot exchange information between the two routers.

QUESTION 71
On a live network, which two commands will verify the operational status of router interfaces? (Choose two.)

A. **Router# show ip interface brief**
B. **Router# debug interface**
C. **Router# show ip protocols**
D. **Router# show interfaces**
E. **Router# show start**

Correct Answer: AD
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Both these commands will show the current status of the interfaces, either in show or debug mode both will display the information.

QUESTION 72
Which two options will help to solve the problem of a network that is suffering a broadcast storm? (Choose two.)

A. a Layer 3 switch
B. a hub
C. a bridge
D. an access point
E. a router

Correct Answer: AE
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Routers and layer 3 switches will not propagate broadcast traffic beyond the local segment, so the use of these devices is the best method for eliminating broadcast storms.

QUESTION 73
Which technique can you use to route IPv6 traffic over an IPv4 infrastructure?

A. NAT
B. 6to4 tunneling
C. L2TPv3
D. dual-stack

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 74
Which NAT command can be applied to an interface?

A. **ip nat inside**
B. **ip nat inside test access-list-number pool pool-name**
C. **ip nat inside source static 10.10.10.0 10.10.10.50**
D. **ip nat pool test 10.10.10.0 10.10.10.50 255.255.255.0**

Correct Answer: A
Section: (none)

Explanation

Explanation/Reference:

QUESTION 75

R1

```
Current configuration : 1651 bytes
!
! No configuration change since last restart
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R1
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
!
!
!
 --- More (105) ---
```

R1

```
!
!
!
!
ip cef
no ipv6 cef
!
multilink bundle-name authenticated
!
!
!
!
!
!
!
!
!
redundancy
!
!
!
!
!
 --- More (79) ---
```

R1

```
interface Ethernet0/0
 description ***Link to ISP***
 ip address 209.165.200.225 255.255.255.224
 ip nat outside
 ip virtual-reassembly in
!
interface Ethernet0/1
 description ***Link to Server1 segment***
 ip address 172.16.200.1 255.255.255.0
 ip nat inside
 ip virtual-reassembly in
!
interface Ethernet0/2
 description ***Link to R2***
 ip address 192.168.10.1 255.255.255.252
 ip access-group R2LANBLOCK in
 ip nat inside
 ip virtual-reassembly in
!
interface Ethernet0/3
 no ip address
 shutdown
!
router rip
 version 2
```

R1

```
ip nat inside source list LOCAL interface Ethernet0/0 overload
ip route 0.0.0.0 0.0.0.0 209.165.200.226
!
ip access-list standard R2LANBLOCK
 deny   10.100.20.0 0.0.0.255
 permit any
!
ip access-list extended LOCAL
 permit ip host 127.0.0.1 any
!
!
!
!
control-plane
!
!
!
!
!
!
!
line con 0
 logging synchronous
line aux 0
 --- More (7) ---
```

R1

```
ip access-list extended LOCAL
 permit ip host 127.0.0.1 any
!
!
!
!
control-plane
!
!
!
!
!
!
!
line con 0
 logging synchronous
line aux 0
line vty 0 4
 login
 transport input all
!
ntp server 209.165.200.226
!
end
R1#
```

R2

```
Building configuration...

Current configuration : 1243 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R2
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
!
!
 --- More (92) ---
```

R2

```
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R2
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
!
!
!
!
```

R2

```
!
!


!
ip dhcp excluded-address 192.168.20.1
!
ip dhcp pool DHCPASSIGNR3
 network 10.10.10.0 255.255.255.252
!
!
!
ip cef
no ipv6 cef
!
multilink bundle-name authenticated
!
!
!
!
!
!
!
!
R2#
```

R3

```
Current configuration : 1115 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R3
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
!
!
!
!
```

R3

```
!
!
!
!
ip cef
no ipv6 cef
!
multilink bundle-name authenticated
!
!
!
!
!
!
!
!
!
redundancy
!
!
!
!
!
!
 --- More (60) ---
```

R3

```
!
!
interface Loopback0
 ip address 192.168.250.3 255.255.255.255
!
interface Ethernet0/0
 description ***Link to LAN***
 ip address 10.100.10.1 255.255.255.0
!
interface Ethernet0/1
 description ***Link to R2***
 ip address dhcp
!
interface Ethernet0/2
 description ***Link to Server2 Segment***
 ip address 10.100.11.1 255.255.255.0
!
interface Ethernet0/3
 no ip address
 shutdown
!
router rip
 version 2
 network 10.0.0.0
 network 192.168.20.0
```

R3

```
 description ***Link to Server2 Segment***
 ip address 10.100.11.1 255.255.255.0
!
interface Ethernet0/3
 no ip address
 shutdown
!
router rip
 version 2
 network 10.0.0.0
 network 192.168.20.0
 network 192.168.250.0
 no auto-summary
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
!
!
!
control-plane
!
```

R3

```
 network 192.168.250.0
 no auto-summary
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
!
!
!
control-plane
!
!
!
!
!
!
!
line con 0
 logging synchronous
line aux 0
line vty 0 4
 --- More (5) ---
```

```
R3
!
no ip http server
no ip http secure-server
!
!
!
!
control-plane
!
!
!
!
!
!
!
line con 0
 logging synchronous
line aux 0
line vty 0 4
 login
 transport input all
!
!
end
R3#
```

Examine the DHCP configuration between R2 and R3; R2 is configured as the DHCP server and R3 as the client. What is the reason R3 is not receiving the IP address via DHCP?

A. On R2, the network statement in the DHCP pool configuration is incorrectly configured.
B. On R3, DHCP is not enabled on the interface that is connected to R2.
C. On R2, the interface that is connected to R3 is in shutdown condition.
D. On R3, the interface that is connected to R2 is in shutdown condition.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
First we should check which interface on R3 that is connected to R2 via the “show run” command.

```
R3#show running-config

<output omitted>
interface Ethernet0/1
 description Link to R2
 no ip address
!
```

From the description we learn interface E0/1 is connected to R2. Use the “show ip interface brief” command to verify the IP address of this interface.

```
R3#show ip interface brief

Interface      IP-Address     OK? Method Status                Protocol
Ethernet0/0    10.100.10.1    YES manual up                    up
Ethernet0/1    unassigned     YES unset  up                    up
Ethernet0/2    10.100.11.1    YES manual up                    up
Ethernet0/3    unassigned     YES unset  administratively down down
Loopback0      192.168.250.3  YES manual up                    up
```

Therefore, we can conclude this interface does not have any IP address and there is no configuration on this interface (except the “description Link to R2” line).
If R3 wants to receive an IP address from R2 via DHCP, interface E0/1 should be configured with the command “ip address dhcp” so the answer “DHCP is not enabled on this interface” is correct.

QUESTION 76

R1

```
Current configuration : 1651 bytes
!
! No configuration change since last restart
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R1
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
!
!
!
 --- More (105) ---
```

R1

```
!
!
!
!
ip cef
no ipv6 cef
!
multilink bundle-name authenticated
!
!
!
!
!
!
!
!
!
redundancy
!
!
!
!
!
 --- More (79) ---
```

R1

```
interface Ethernet0/0
 description ***Link to ISP***
 ip address 209.165.200.225 255.255.255.224
 ip nat outside
 ip virtual-reassembly in
!
interface Ethernet0/1
 description ***Link to Server1 segment***
 ip address 172.16.200.1 255.255.255.0
 ip nat inside
 ip virtual-reassembly in
!
interface Ethernet0/2
 description ***Link to R2***
 ip address 192.168.10.1 255.255.255.252
 ip access-group R2LANBLOCK in
 ip nat inside
 ip virtual-reassembly in
!
interface Ethernet0/3
 no ip address
 shutdown
!
router rip
 version 2
```

R1

```
ip nat inside source list LOCAL interface Ethernet0/0 overload
ip route 0.0.0.0 0.0.0.0 209.165.200.226
!
ip access-list standard R2LANBLOCK
 deny   10.100.20.0 0.0.0.255
 permit any
!
ip access-list extended LOCAL
 permit ip host 127.0.0.1 any
!
!
!
!
control-plane
!
!
!
!
!
!
!
line con 0
 logging synchronous
line aux 0
 --- More (7) ---
```

R1

```
ip access-list extended LOCAL
 permit ip host 127.0.0.1 any
!
!
!
!
control-plane
!
!
!
!
!
!
!
line con 0
 logging synchronous
line aux 0
line vty 0 4
 login
 transport input all
!
ntp server 209.165.200.226
!
end
R1#
```

R2

```
Building configuration...

Current configuration : 1243 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R2
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
!
!
 --- More (92) ---
```

R2

```
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R2
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
!
!
!
!
```

R2

```
!
!


!
ip dhcp excluded-address 192.168.20.1
!
ip dhcp pool DHCPASSIGNR3
 network 10.10.10.0 255.255.255.252
!
!
!
ip cef
no ipv6 cef
!
multilink bundle-name authenticated
!
!
!
!
!
!
!
!
R2#
```

R3

```
Current configuration : 1115 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R3
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
!
!
!
!
```

R3

```
!
!
!
!
ip cef
no ipv6 cef
!
multilink bundle-name authenticated
!
!
!
!
!
!
!
!
!
redundancy
!
!
!
!
!
!
 --- More (60) ---
```

R3

```
!
!
interface Loopback0
 ip address 192.168.250.3 255.255.255.255
!
interface Ethernet0/0
 description ***Link to LAN***
 ip address 10.100.10.1 255.255.255.0
!
interface Ethernet0/1
 description ***Link to R2***
 ip address dhcp
!
interface Ethernet0/2
 description ***Link to Server2 Segment***
 ip address 10.100.11.1 255.255.255.0
!
interface Ethernet0/3
 no ip address
 shutdown
!
router rip
 version 2
 network 10.0.0.0
 network 192.168.20.0
```

R3

```
 description ***Link to Server2 Segment***
 ip address 10.100.11.1 255.255.255.0
!
interface Ethernet0/3
 no ip address
 shutdown
!
router rip
 version 2
 network 10.0.0.0
 network 192.168.20.0
 network 192.168.250.0
 no auto-summary
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
!
!
!
control-plane
!
```

R3

```
 network 192.168.250.0
 no auto-summary
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
!
!
!
control-plane
!
!
!
!
!
!
!
line con 0
 logging synchronous
line aux 0
line vty 0 4
 --- More (5) ---
```

```
R3
!
no ip http server
no ip http secure-server
!
!
!
!
control-plane
!
!
!
!
!
!
!
line con 0
 logging synchronous
line aux 0
line vty 0 4
 login
 transport input all
!
!
end
R3#
```

R1 clock is synchronized with ISP router. R2 is supposed to receive NTP updates from R1. But you observe that R2 clock is not synchronized with R1. What is the reason R2 is not receiving NTP updates from R1?

A. The IP address that is used in the NTP configuration on R2 router is incorrect.
B. The NTP server command not configured on R2 router.
C. R2 router Ethernet interface that is connected to R1 is placed in shutdown condition.
D. R1 router Ethernet interface that is connected to R2 is placed in shutdown condition.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
First we should verify if the ports connected between R1 and R2 is in “up/up” state with the “show ip interface brief” command on R1 & R2.

```
R1#show ip interface brief

Interface      IP-Address      OK? Method Status                Protocol
Ethernet0/0    209.165.200.225 YES manual up                    up
Ethernet0/1    172.16.200.1    YES manual up                    up
Ethernet0/2    192.168.10.1    YES manual up                    up
Ethernet0/3    unassigned      YES unset  administratively down down
Loopback0      192.168.250.1   YES manual up                    up
NVI0           192.168.250.1   YES unset  up                    up

R2#show ip interface brief

Interface      IP-Address      OK? Method Status                Protocol
Ethernet0/0    192.168.20.1    YES manual up                    up
Ethernet0/1    unassigned      YES unset  up                    up
Ethernet0/2    192.168.10.2    YES manual up                    up
Ethernet0/3    10.100.20.1     YES manual up                    up
Loopback0      192.168.250.2   YES manual up                    up
```

Note: We learn R1 & R2 connect to each other via E0/2 interface because the IP addresses of these interfaces belong to 192.168.10.0/30 subnet. Both of them are “up/up” so the link connecting between R1 & R2 is good.
Next we need to verify the ntp configuration on R2 with the “show running-config” command:

```
R2#show running-config
<output omitted>
ntp server 192.168.100.1
!
end
```

So there is only one command related to NTP configuration on R2 so we need to check if the IP address of 192.168.100.1 is correct or not. But from the “show ip interface brief” command on R1 we don’t see this IP -> This IP address is not correct. It should be 192.168.10.1 (IP address of interface E0/2 of R1), not 192.168.100.1.

QUESTION 77

Scenario

You are a junior network engineer for a financial company, and the main office network is experiencing network issues. Troubleshoot the network issues.

Router R1 connects the main office to the Internet, and routers R2 and R3 are internal routers.
NAT is enabled on router R1.
The routing protocol that is enabled between routers R1, R2, and R3 is RIPv2.
R1 sends the default route into RIPv2 for the internal routers to forward Internet traffic to R1.

You have console access on R1, R2, and R3 devices. Use only show commands to troubleshoot the issues.

Topology

R1

```
Current configuration : 1651 bytes
!
! No configuration change since last restart
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R1
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
!
!
!
 --- More (105) ---
```

R1

```
!
!
!
!
ip cef
no ipv6 cef
!
multilink bundle-name authenticated
!
!
!
!
!
!
!
!
!
redundancy
!
!
!
!
!
 --- More (79) ---
```

R1

```
interface Ethernet0/0
 description ***Link to ISP***
 ip address 209.165.200.225 255.255.255.224
 ip nat outside
 ip virtual-reassembly in
!
interface Ethernet0/1
 description ***Link to Server1 segment***
 ip address 172.16.200.1 255.255.255.0
 ip nat inside
 ip virtual-reassembly in
!
interface Ethernet0/2
 description ***Link to R2***
 ip address 192.168.10.1 255.255.255.252
 ip access-group R2LANBLOCK in
 ip nat inside
 ip virtual-reassembly in
!
interface Ethernet0/3
 no ip address
 shutdown
!
router rip
 version 2
```

R1

```
ip nat inside source list LOCAL interface Ethernet0/0 overload
ip route 0.0.0.0 0.0.0.0 209.165.200.226
!
ip access-list standard R2LANBLOCK
 deny   10.100.20.0 0.0.0.255
 permit any
!
ip access-list extended LOCAL
 permit ip host 127.0.0.1 any
!
!
!
!
control-plane
!
!
!
!
!
!
!
line con 0
 logging synchronous
line aux 0
 --- More (7) ---
```

R1

```
ip access-list extended LOCAL
 permit ip host 127.0.0.1 any
!
!
!
!
control-plane
!
!
!
!
!
!
!
line con 0
 logging synchronous
line aux 0
line vty 0 4
 login
 transport input all
!
ntp server 209.165.200.226
!
end
R1#
```

R2

```
Building configuration...

Current configuration : 1243 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R2
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
!
!
 --- More (92) ---
```

R2

```
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R2
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
!
!
!
!
```

R2

```
!
!
!
ip dhcp excluded-address 192.168.20.1
!
ip dhcp pool DHCPASSIGNR3
 network 10.10.10.0 255.255.255.252
!
!
!
ip cef
no ipv6 cef
!
multilink bundle-name authenticated
!
!
!
!
!
!
!
!
R2#
```

R3

```
Current configuration : 1115 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R3
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
!
!
!
!
```

R3

```
!
!
!
!
ip cef
no ipv6 cef
!
multilink bundle-name authenticated
!
!
!
!
!
!
!
!
!
redundancy
!
!
!
!
!
!
 --- More (60) ---
```

R3

```
!
!
interface Loopback0
 ip address 192.168.250.3 255.255.255.255
!
interface Ethernet0/0
 description ***Link to LAN***
 ip address 10.100.10.1 255.255.255.0
!
interface Ethernet0/1
 description ***Link to R2***
 ip address dhcp
!
interface Ethernet0/2
 description ***Link to Server2 Segment***
 ip address 10.100.11.1 255.255.255.0
!
interface Ethernet0/3
 no ip address
 shutdown
!
router rip
 version 2
 network 10.0.0.0
 network 192.168.20.0
```

R3

```
 description ***Link to Server2 Segment***
 ip address 10.100.11.1 255.255.255.0
!
interface Ethernet0/3
 no ip address
 shutdown
!
router rip
 version 2
 network 10.0.0.0
 network 192.168.20.0
 network 192.168.250.0
 no auto-summary
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
!
!
!
control-plane
!
```

R3

```
 network 192.168.250.0
 no auto-summary
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
!
!
!
control-plane
!
!
!
!
!
!
!
line con 0
 logging synchronous
line aux 0
line vty 0 4
 --- More (5) ---
```

R3

```
!
no ip http server
no ip http secure-server
!
!
!
!
control-plane
!
!
!
!
!
!
!
line con 0
 logging synchronous
line aux 0
line vty 0 4
 login
 transport input all
!
!
end
R3#
```

Why application that are installed on PC's in R2 LAN network 10.100.20.0/24 are unable to communicate with Server1?

A. A standard ACL statement that is configured on R1 is blocking the traffic sourced from Server1 network.
B. A standard ACL statement that is configured on R2 is blocking the traffic sourced from Server1 network.
C. A standard ACL statement that is configured on R2 is blocking the traffic sourced from R2 LAN network.

D. A standard ACL statement that is configured on R1 is blocking the traffic sourced from R2 LAN network.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
We should check if we can ping from R1 to Server 1 or not:

```
R1#ping 172.16.200.250
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 172.16.200.250, timeout is 2 seconds:
!!!!!
```

The ping worked well so maybe R1 is good so we should check R2 first. We notice on R2 there is an access-list:

```
R2# show running-config
<output omitted>
interface Ethernet0/2
 description Link to R1
 ip address 192.168.10.2 255.255.255.252
 ip access-group SERVER1BLOCK in
!
<output omitted>
ip access-list standard SERVER1BLOCK
 deny   172.16.200.0 0.0.0.255
 permit any
```

This access-list is applied to E0/2 interface with inbound direction. The purpose of this access-list is to block traffic with source IP address of 172.16.200.0/24 so it will block all traffic sent from Server 1 to us.

QUESTION 78

Scenario

You are a junior network engineer for a financial company, and the main office network is experiencing network issues. Troubleshoot the network issues.

Router R1 connects the main office to the Internet, and routers R2 and R3 are internal routers.
NAT is enabled on router R1.
The routing protocol that is enabled between routers R1, R2, and R3 is RIPv2.
R1 sends the default route into RIPv2 for the internal routers to forward Internet traffic to R1.

You have console access on R1, R2, and R3 devices. Use only show commands to troubleshoot the issues.

Topology

R1

```
Current configuration : 1651 bytes
!
! No configuration change since last restart
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R1
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
!
!
!
 --- More (105) ---
```

R1

```
!
!
!
!
ip cef
no ipv6 cef
!
multilink bundle-name authenticated
!
!
!
!
!
!
!
!
!
redundancy
!
!
!
!
!
 --- More (79) ---
```

R1

```
interface Ethernet0/0
 description ***Link to ISP***
 ip address 209.165.200.225 255.255.255.224
 ip nat outside
 ip virtual-reassembly in
!
interface Ethernet0/1
 description ***Link to Server1 segment***
 ip address 172.16.200.1 255.255.255.0
 ip nat inside
 ip virtual-reassembly in
!
interface Ethernet0/2
 description ***Link to R2***
 ip address 192.168.10.1 255.255.255.252
 ip access-group R2LANBLOCK in
 ip nat inside
 ip virtual-reassembly in
!
interface Ethernet0/3
 no ip address
 shutdown
!
router rip
 version 2
```

R1

```
ip nat inside source list LOCAL interface Ethernet0/0 overload
ip route 0.0.0.0 0.0.0.0 209.165.200.226
!
ip access-list standard R2LANBLOCK
 deny   10.100.20.0 0.0.0.255
 permit any
!
ip access-list extended LOCAL
 permit ip host 127.0.0.1 any
!
!
!
!
control-plane
!
!
!
!
!
!
!
line con 0
 logging synchronous
line aux 0
 --- More (7) ---
```

R1

```
ip access-list extended LOCAL
 permit ip host 127.0.0.1 any
!
!
!
!
control-plane
!
!
!
!
!
!
!
line con 0
 logging synchronous
line aux 0
line vty 0 4
 login
 transport input all
!
ntp server 209.165.200.226
!
end
R1#
```

R2

```
Building configuration...

Current configuration : 1243 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R2
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
!
!
 --- More (92) ---
```

R2

```
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R2
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
!
!
!
!
```

R2

```
!
!
!
ip dhcp excluded-address 192.168.20.1
!
ip dhcp pool DHCPASSIGNR3
 network 10.10.10.0 255.255.255.252
!
!
!
ip cef
no ipv6 cef
!
multilink bundle-name authenticated
!
!
!
!
!
!
!
!
R2#
```

R3

```
Current configuration : 1115 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R3
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
mmi polling-interval 60
no mmi auto-configure
no mmi pvc
mmi snmp-timeout 180
!
!
!
!
```

R3

```
!
!
!
!
ip cef
no ipv6 cef
!
multilink bundle-name authenticated
!
!
!
!
!
!
!
!
!
redundancy
!
!
!
!
!
!
 --- More (60) ---
```

R3

```
!
!
interface Loopback0
 ip address 192.168.250.3 255.255.255.255
!
interface Ethernet0/0
 description ***Link to LAN***
 ip address 10.100.10.1 255.255.255.0
!
interface Ethernet0/1
 description ***Link to R2***
 ip address dhcp
!
interface Ethernet0/2
 description ***Link to Server2 Segment***
 ip address 10.100.11.1 255.255.255.0
!
interface Ethernet0/3
 no ip address
 shutdown
!
router rip
 version 2
 network 10.0.0.0
 network 192.168.20.0
```

R3

```
 description ***Link to Server2 Segment***
 ip address 10.100.11.1 255.255.255.0
!
interface Ethernet0/3
 no ip address
 shutdown
!
router rip
 version 2
 network 10.0.0.0
 network 192.168.20.0
 network 192.168.250.0
 no auto-summary
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
!
!
!
control-plane
!
```

R3

```
 network 192.168.250.0
 no auto-summary
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
!
!
!
control-plane
!
!
!
!
!
!
!
line con 0
 logging synchronous
line aux 0
line vty 0 4
 --- More (5) ---
```

R3

```
!
no ip http server
no ip http secure-server
!
!
!
!
control-plane
!
!
!
!
!
!
!
line con 0
 logging synchronous
line aux 0
line vty 0 4
 login
 transport input all
!
!
end
R3#
```

Users complain that they are unable to reach Internet sites. You are troubleshooting Internet connectivity problem at main office. Which statement correctly identifies the problem on Router R1?

A. Interesting traffic for NAT ACL is incorrectly configured.
B. NAT configurations in the interfaces are incorrectly configured.
C. NAT translation statement incorrectly configured.

D. Only static NAT translation configured for the server, missing Dynamic NAT or Dynamic NAT overloading for internal networks.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
If all users cannot access the Internet, then R1 is most likely to cause the problem so we should check it first. From the "show running-config" command we will see:

```
R1# show running-config
<output omitted>

interface Ethernet0/0
 description Link to ISP
 ip address 209.165.200.225 255.255.255.224
 ip nat inside
 ip virtual-reassembly in
!
interface Ethernet0/1
 description Link to Server 1
 ip address 172.16.200.1 255.255.255.0
 ip nat outside
 ip virtual-reassembly in
!
interface Ethernet0/2
 description Link to R2
 ip address 192.168.10.1 255.255.255.252
 ip nat outside
 ip virtual-reassembly in
```

Here we see that interface E0/0 (connected to ISP) has been configured as "nat inside" while interfaces E0/1 & E0/2 (connected to our company) have been configured as "nat outside". This is not correct because "nat inside" should be configured with interfaces connected to our company while "nat outside" should be configured with interfaces connected to the internet. Therefore, we can conclude the NAT configuration on these interfaces is not correct.

QUESTION 79
Which subnet address is for the IP address 172.19.20.23/28?

A. 172.19.20.20
B. 172.19.20.0
C. 172.19.20.32
D. 172.19.20.15
E. 172.19.20.16

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:

QUESTION 80
Which protocol verifies connectivity between two switches that are configured with IP addresses in the same network?

A. ICMP
B. STP
C. VTP
D. HSRP

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 81
Which command displays the number of times that an individual router translated an inside address to an outside address?

A. **show ip protocol**
B. **show ip nat translation**
C. **show counters**
D. **show ip route**
E. **show ip nat statistics**

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:
Reference: https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/ipaddr/command/ipaddr-cr-book/ipaddr-s1.html#wp3444569034

QUESTION 82
On which OSI layer does a VLAN operate?

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

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 83
What is the subnet address of 192.168.1.42 255.255.255.248?

A. 192.168.1.16/28
B. 192.168.1.32/27
C. 192.168.1.40/29

D. 192.168.1.8/29
E. 192.168.1.48/29

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
248 mask uses 5 bits (1111 1000)
42 IP in binary is (0010 1010)
The base subnet therefore is the lowest binary value that can be written without changing the output of an AND operation of the subnet mask and IP ...
1111 1000 AND
0010 1010 equals
0010 1000 - which is .40
/24 is standard class C mask.
adding the 5 bits from the .248 mask gives /29

QUESTION 84
Which statement describes the effect of the **copy run start** command on a router in enable mode?

A. The running configuration of the router is saved to NVRAM and used during the boot process.
B. The router reboots and loads the last saved running configuration.
C. A copy of the running configuration of the router is sent by FTP to a designated server.
D. A new running configuration is loaded from flash memory to the router.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 85

Instructions
For both the Router and the Switch the simulated console mode needs to start and remain in enabled mode.

RouterA and SwitchA have been configured to operate in a private network which will connect to the Internet. You have been asked to review the configuration prior to cabling and implementation.

This task requires the use of various IOS commands to access and inspect the running configuration of RouterA and SwitchA. No configuration changes are necessary.

You will connect to RouterA and SwilchA via the console devices that are attached to each.

There are 4 multiple-choice questions with this task. Be sure to answer all of them before leaving this item. In order to score the maximum points you will need to have accessed both SwitchA and RouterA.

NOTE: The configuration command has been disabled for both the router and switch in this simulation.

Which two are security issues which need to be modified before RouterA is used? (Choose two.)

A. unencrypted weak password is configured to protect privilege mode
B. inappropriate wording in banner message
C. the virtual terminal lines have a weak password configured
D. virtual terminal lines have a password, but it will not be used
E. configuration supports un-secure web server access

Correct Answer: AE
Section: (none)
Explanation

Explanation/Reference:
Explanation:
ROUTER A CONFIGURATION:

!
no service password-encryption

```
!
enable password cisco
!
username ciscouser privilege 15 password 0 cisco
!
banner motd ^CWelcome! If you encountered any problem, please consult the administrator^C
!
line vty 0 4
password 4t&34rkf
login local
transport input telnet ssh
!
```

“no service password-encryption” displays the passwords in plain text, and here we see that the password is set to the easily guessable password of “cisco”. Never say “Welcome” in your banner message, it is basically an open invitation to access the device without permission.

QUESTION 86

Instructions
For both the Router and the Switch the simulated console mode needs to start and remain in enabled mode.

RouterA and SwitchA have been configured to operate in a private network which will connect to the Internet. You have been asked to review the configuration prior to cabling and implementation.

This task requires the use of various IOS commands to access and inspect the running configuration of RouterA and SwitchA. No configuration changes are necessary.

You will connect to RouterA and SwilchA via the console devices that are attached to each.

There are 4 multiple-choice questions with this task. Be sure to answer all of them before leaving this item. In order to score the maximum points you will need to have accessed both SwitchA and RouterA.

NOTE: The configuration command has been disabled for both the router and switch in this simulation.

Which three options are security issues with the current configuration of SwitchA? (Choose three.)

A. privilege mode is protected with an unencrypted password
B. inappropriate wording in banner message
C. virtual terminal lines are protected only by a password requirement
D. both username and password are weak
E. telnet connections can be used to remotely manage the switch
F. cisco user will be granted privilege level 15 by default

Correct Answer: ABD
Section: (none)
Explanation

Explanation/Reference:
Explanation:
SWITCH A CONFIGURATION

!

```
!
no service password-encryption
!
hostname switch1
enable password cisco
username ciscouser password 0 cisco
ip domain-name cisco.com

banner login ^c
************ welcome to Switch1. If you encountered any problem, please consult the administrator *************
^c

line con 0
line vty 0 4
login local
transport input ssh
line vty 5 15
login local
transport input ssh
```

QUESTION 87

Instructions
For both the Router and the Switch the simulated console mode needs to start and remain in enabled mode.

RouterA and SwitchA have been configured to operate in a private network which will connect to the Internet. You have been asked to review the configuration prior to cabling and implementation.

This task requires the use of various IOS commands to access and inspect the running configuration of RouterA and SwitchA. No configuration changes are necessary.

You will connect to RouterA and SwilchA via the console devices that are attached to each.

There are 4 multiple-choice questions with this task. Be sure to answer all of them before leaving this item. In order to score the maximum points you will need to have accessed both SwitchA and RouterA.

NOTE: The configuration command has been disabled for both the router and switch in this simulation.

Which of the following is true regarding the configuration of SwitchA?

A. only 5 simultaneous remote connections are possible
B. remote connections using ssh will require a username and password
C. only connections from the local network will be possible
D. console access to SwitchA requires a password

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
SWITCH A CONFIGURATION

!
!
no service password-encryption
!

```
hostname switch1
enable password cisco
username ciscouser password 0 cisco
ip domain-name cisco.com

banner login ^c
************ welcome to Switch1. If you encountered any problem, please consult the administrator *************
^c

line con 0
line vty 0 4
login local
transport input ssh
line vty 5 15
login local
transport input ssh
```

QUESTION 88
Refer to the exhibit.

All devices attached to the network are shown. Which number of collision domains are present in this network?

A. 9
B. 3
C. 6
D. 2
E. 15

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:
Explanation:
A switch uses a separate collision domain for each port so there are a total of 9 for each device shown. In addition to this, the switch to switch connections (3) are a separate collision domain. Finally, we add the switch to router connections (2) and the router to router connection (1) for a total of 15.

QUESTION 89
Refer to the exhibit.

SwitchA# **show mac-address-table**

< non-essential output omitted >

Destination Address	Address Type	VLAN	Destination Port
00b0.d056.fe4d	Dynamic	1	FastEthernet0/3
00b0.d043.ac2e	Dynamic	1	FastEthernet0/4
00b0.d0fe.ac32	Dynamic	1	FastEthernet0/5
00b0.d0da.cb56	Dynamic	1	FastEthernet0/6

Frame received by SwitchA:

Source MAC	Destination MAC	Source IP	Destination IP
00b0.d056.fe4d	00b0.d0da.895a	192.168.40.5	192.168.40.6

Which option describes how SwitchA will handle the frame just received?

A. It will flood the frame out of all the ports except Fa0/3.
B. It will drop the frame.
C. It will flood the frame out all ports.
D. It will forward the frame out of port Fa0/3 only.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 90
Which statement describes the effect of the **exec-timeout 30** command?

A. The router maintains a user session indefinitely after it is active for 30 seconds.

B. The router disconnects the user session if it is inactive for 30 minutes.
C. The router maintains a user session indefinitely after it is active for 30 minutes.
D. The router disconnects a user session if it is inactive for 30 seconds.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The "exec-timeout" command is used to configure the inactive session timeout on the console port or the virtual terminal. The syntax of this command is:
exec-timeout minutes [seconds]
Therefore we need to use the "exec-timeout 30" command to set the user inactivity timer to 30 minutes. To set the user inactivity timer to 30 seconds we use the "exec-timeout 0 30".

Reference: http://www.cisco.com/c/m/en_us/techdoc/dc/reference/cli/nxos/commands/fund/exec-timeout.html

QUESTION 91
Which statement about the default switch configuration for remote access managements is true?

A. The system name is set to Cisco.
B. The Telnet password is set to cisco.
C. No default gateway is defined.
D. One IP address is preconfigured.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 92
Which two VLANs are reserved for system use only? (Choose two.)

A. 2
B. 4095
C. 1001
D. 4096
E. 1
F. 0

Correct Answer: BF
Section: (none)
Explanation

Explanation/Reference:
Explanation:

VLANs	Range	Usage	Propagated by VTP
0, 4095	Reserved	For system use only. You cannot see or use these VLANs.	N/A
1	Normal	Cisco default. You can use this VLAN but you cannot delete it.	Yes
2-1001	Normal	Used for Ethernet VLANs; you can create, use, and delete these VLANs.	Yes
1002-1005	Normal	Cisco defaults for FDDI and Token Ring. You cannot delete VLANs 1002-1005.	Yes
1006-4094	Extended	For Ethernet VLANs only. When configuring extended-range VLANs, note the following: • Layer 3 ports and some software features require internal VLANs. Internal VLANs are allocated from 1006 and up. You cannot use a VLAN that has been allocated for such use. To display the VLANs used internally, enter the **show vlan internal usage** command. • Switches running Catalyst product family software do not support configuration of VLANs 1006-1024. If you configure VLANs 1006-1024, ensure that the VLANs do not extend to any switches running Catalyst product family software. • You must enable the extended system ID to use extended range VLANs. See the "Enabling the Extended System ID" section.	No

Reference: http://www.cisco.com/c/en/us/td/docs/switches/lan/catalyst4500/12-2/25ew/configuration/guide/conf/vlans.html

QUESTION 93
In which circumstance is static routing most useful?

A. on a stub network
B. on a network with frequent routing changes
C. on a network that experiences frequent link failures
D. on a large network that must share routes quickly between routers

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 94
Which information is used to install the best route to a destination in IP routing table?

A. the tunnel ID
B. the prefix length
C. the interface number
D. the autonomous system

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 95

Refer to the exhibit. Which command would you use to configure a static route on Router1 to network 192.168.202.0/24 with a nondefault administrative distance?

A. **router1(config)#ip route 192.168.202.0 255.255.255.0 192.168.201.2 1**
B. **router1(config)#ip route 192.168.202.0 255.255.255.0 192.168.201.2 5**
C. **router1(config)#ip route 1 192.168.201.1 255.255.255.0 192.168.201.2**
D. **router1(config)#ip route 5 192.168.202.0 255.255.255.0 192.168.201.2**

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Default AD is one and we are asked to configure a nondefault value.

QUESTION 96
Which sequence begins a unique local IPv6 address in binary notation?

A. 1111110
B. 1111111
C. 00000000
D. 1111100

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 97
If a host experiences intermittent issues that relate to congestion within a network while remaining connected, which option could cause congestion on this LAN?

A. multicasting
B. network segmentation
C. broadcast storms
D. half-duplex operation

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
A broadcast storm can consume sufficient network resources so as to render the network unable to transport normal traffic.

QUESTION 98
A switch has 48 ports and 4 VLANs. How many collision and broadcast domains exist on the switch (collision, broadcast)?

A. 4,48
B. 48,4
C. 48,1
D. 4,1
E. 1,48

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
A switch uses a separate collision domain for each port, and each VLAN is a separate broadcast domain.

QUESTION 99
Which network configuration can you use to segregate broadcast traffic for two different departments in your organization?

A. Configure two VTP domains and configure the switches in transparent mode.
B. Enable spanning-tree load balancing.
C. Implement switch port security on designated ports.
D. Configure a separate VLAN for each department.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 100
Which keyword in a NAT configuration enables the use of one outside IP address for multiple inside hosts?

A. source
B. static
C. pool
D. overload

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 101
Which NAT term is defined as a group of addresses available for NAT use?

A. NAT pool
B. dynamic NAT
C. static NAT
D. one-way NAT

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 102

Refer to the exhibit. The enterprise has decided to use the network address 172.16.0.0. The network administrator needs to design a classful addressing scheme to accommodate the three subnets, with 30, 40, and 50 hosts, as shown. Which subnet mask would accommodate this network?

A. 255.255.255.224
B. 255.255.255.240
C. 255.255.255.252
D. 255.255.255.248
E. 255.255.255.192

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Subnet mask A i.e. 255.255.255.192 with CIDR of /26 which means 64 hosts per subnet which are sufficient to accommodate even the largest subnet of 50 hosts.

Net Bits	Subnet Mask	Total-Address Per Subnet
/20	255.255.240.0	4096
/21	255.255.248.0	2048
/22	255.255.252.0	1024
/23	255.255.254.0	512
/24	255.255.255.0	256
/25	255.255.255.128	128
/26	255.255.255.192	64
/27	255.255.255.224	32
/28	255.255.255.240	16
/29	255.255.255.248	8
/30	255.255.255.252	4

QUESTION 103

Refer to the exhibit. The network administrator is testing connectivity from the branch router to the newly

installed application server. Which reason is the most likely for the first ping having a success rate of only 60 percent?

A. The branch router LAN interface should be upgraded to FastEthernet.
B. The branch router had to resolve the application server MAC address.
C. The network is likely to be congested, with the result that packets are being intermittently dropped.
D. There is a short delay while NAT translates the server IP address.
E. A routing table lookup delayed forwarding on the first two ping packets.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The first time out is due for the time it took for the router to issue an ARP and get the MAC address associated with the 192.168.2.167 IP address. Once this ARP was resolved, the other pings were successful.

QUESTION 104

Switch 1 switch table

Host	MAC Address	Port
A	00-0A-8A-47-E6-12	0/5
D	01-00-CD-22-03-14	0/9
B	01-1B-25-AB-32-E8	0/2

Refer to the topology and switching table shown in the graphic. Host B sends a frame to Host C. Which option describes what the switch will do with the frame?

A. send an ICMP Host Unreachable message to Host B
B. return the frame to Host B
C. drop the frame
D. send the frame out all ports except port 0/2
E. record the destination MAC address in the switching table and send the frame directly to Host C
F. send an ARP request for Host C

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:

An Ethernet switch appears to use the same logic as a transparent bridge. However, the internal logic of the switch is optimized for performing the basic function of choosing when to forward and when to filter a frame. Just as with a transparent bridge, the basic logic of a LAN switch is as follows:

Step 1	A frame is received.
Step 2	If the destination is a broadcast or multicast, forward on all ports.
Step 3	If the destination is a unicast and the address is not in the address table, forward on all ports.
Step 4	If the destination is a unicast and the address is in the address table, forward the frame out the associated port, unless the MAC address is associated with the incoming port.

QUESTION 105
An administrator has connected devices to a switch and, for security reasons, wants the dynamically learned MAC addresses from the address table added to the running configuration. Which action must be taken to accomplish this?

A. Use the **no switchport port-security** command to allow MAC addresses to be added to the configuration.
B. Enable port security and use the keyword **sticky**.
C. Set the switchport mode to trunk and save the running configuration.
D. Use the **switchport protected** command to have the MAC addresses added to the configuration.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
One can configure MAC addresses to be sticky. These can be dynamically learned or manually configured, stored in the address table, and added to the running configuration. If these addresses are saved in the configuration file, the interface does not need to dynamically relearn them when the switch restarts.

QUESTION 106
Which port-security feature allows a switch to learn MAC addresses dynamically and add them to the running configuration?

A. security violation restrict mode
B. switch port protection
C. sticky learning
D. security violation protect mode

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
You can configure an interface to convert the dynamic MAC addresses to sticky secure MAC addresses and to add them to the running configuration by enabling sticky learning. To enable sticky learning, enter the switchport port-security mac-address sticky interface configuration command. When you enter this command,

the interface converts all the dynamic secure MAC addresses, including those that were dynamically learned before sticky learning was enabled, to sticky secure MAC addresses.
Reference: https://learningnetwork.cisco.com/thread/27768

QUESTION 107
Which statement about 6to4 tunneling is true?

A. One tunnel endpoint must be configured with IPv4 only.
B. Both tunnel endpoint must be configured with IPv4 only.
C. It establishes a point-to-point tunnel.
D. Both tunnel endpoints must support IPv4 and IPv6.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 108
An administrator is working with the 192.168.4.0 network, which has been subnetted with a /26 mask. Which two addresses can be assigned to hosts within the same subnet? (Choose two.)

A. 192.168.4.67
B. 192.168.4.61
C. 192.168.4.128
D. 192.168.4.132
E. 192.168.4.125
F. 192.168.4.63

Correct Answer: AE
Section: (none)
Explanation

Explanation/Reference:
Explanation:
With a /26 the following four subnets are created.
1st subnet: 192.168.4.0 (to 192.168.4.63)
2nd subnet: 192.168.4.64 (to 192.168.4.127)
3rd subnet: 192.168.4.128 (to 192.168.4.191)
4th subnet: 192.168.4.192 (to 192.168.4.225)

QUESTION 109
Which adverse situation can occur if an Ethernet cable is too long?

A. late collisions
B. giants
C. interface resets
D. runts

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 110
Which statement about NTP is true?

A. The default authentication key number is 1.
B. The default source address of an NTP message is the interface connected to the next-hop for the server peer address.
C. The default stratum number is 5.
D. Each device is enabled as a server by default and propagates NTP messages to all peers on its default LAN.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 111
Which statement about routing protocols is true?

A. Distance-vector routing protocols use the Shortest Path First algorithm.
B. OSPF is a link-state routing protocol.
C. IS-IS is a distance-vector routing protocol.
D. Link-state routing protocols choose a path by the number of hops to the destination.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Link State Routing Protocols
Link state protocols are also called shortest-path-first protocols. Link state routing protocols have a complete picture of the network topology. Hence they know more about the whole network than any distance vector protocol.
Three separate tables are created on each link state routing enabled router. One table is used to hold details about directly connected neighbors, one is used to hold the topology of the entire internetwork and the last one is used to hold the actual routing table. Link state protocols send information about directly connected links to all the routers in the network. Examples of Link state routing protocols include OSPF - Open Shortest Path First and IS-IS - Intermediate System to Intermediate System. There are also routing protocols that are considered to be hybrid in the sense that they use aspects of both distance vector and link state protocols. EIGRP – Enhanced Interior Gateway Routing Protocol is one of those hybrid routing protocols.

QUESTION 112

```
R1(config)#ip nat pool cisco 10.1.1.0 10.1.1.50 255.255.255.0
```

Refer to the exhibit. Which feature is enabled by this configuration?

A. static NAT translation
B. a DHCP pool
C. a dynamic NAT address pool
D. PAT

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 113
Which statement about DHCP address pools is true?

A. A network must be defined before you can configure a manual binding.
B. Only one DNS server can be identified for an individual DHCP group.
C. You can use a subnet mask of prefix length to define a network.
D. The domain name of the DHCP pool is specified in the global configuration of the router.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 114
How does a Layer 2 switch differ from a hub?

A. A switch tracks MAC addresses of directly-connected devices.
B. A switch always induces latency into the frame transfer time.
C. A switch operates at a lower, more efficient layer of the OSI model.
D. A switch decreases the number of collision domains.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 115
Which feature automatically disables Cisco Express Forwarding when it is enabled?

A. multicast
B. IP redirects
C. RIB
D. ACL logging

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
If you enable Cisco Express Forwarding and then create an access list that uses the logkeyword, the packets that match the access list are not Cisco Express Forwarding switched. They are process switched. Logging disables Cisco Express Forwarding.
Reference: http://www.cisco.com/c/en/us/td/docs/ios-xml/ios/ipswitch_cef/configuration/12-4t/isw-cef-12-4t-book/isw-cef-enable-disable.html

QUESTION 116
DRAG DROP
You are performing the initial configuration on a new Cisco device. Drag the task from the left onto the required or optional category on the right.

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 117

SwitchA# **show mac-address-table**

< non-essential output omitted >

Destination Address	Address Type	VLAN	Destination Port
00b0.d056.fe4d	Dynamic	1	FastEthernet0/3
00b0.d043.ac2e	Dynamic	1	FastEthernet0/4
00b0.d0fe.ac32	Dynamic	1	FastEthernet0/5
00b0.d0da.cb56	Dynamic	1	FastEthernet0/6

Frame received by SwitchA:

Source MAC	Destination MAC	Source IP	Destination IP
00b0.d056.fe4d	00b0.d0da.cb56	192.168.40.5	192.168.40.6

Refer to the exhibit. Which option describes how SwitchA will handle the frame just received?

A. It will flood the frame out of all the ports except Fa0/3.
B. It will drop the frame.
C. It will flood the frame out all ports.
D. It will forward the frame out of port Fa0/3 only.
E. It will forward the frame out of port Fa0/6 only.

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:

QUESTION 118
How does a switch differ from a hub?

A. A switch does not induce any latency into the frame transfer time.
B. A switch tracks MAC addresses of directly-connected devices.
C. A switch operates at a lower, more efficient layer of the OSI model.

D. A switch decreases the number of broadcast domains.
E. A switch decreases the number of collision domains.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Some of the features and functions of a switch include:
A switch is essentially a fast, multi-port bridge, which can contain dozens of ports. Rather than creating two collision domains, each port creates its own collision domain. In a network of twenty nodes, twenty collision domains exist if each node is plugged into its own switch port. If an uplink port is included, one switch creates twenty-one single-node collision domains. A switch dynamically builds and maintains a Content-Addressable Memory (CAM) table, holding all of the necessary MAC information for each port.

QUESTION 119
Refer to the exhibit. Host A is sending a packet to Host B for the first time. What destination MAC address will Host A use in the ARP request?

A. 192.168.0.1
B. 172.16.0.50
C. 00-17-94-61-18-b0
D. 00-19-d3-2d-c3-b2
E. ff-ff-ff-ff-ff-ff
F. 255.255.255.255

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Since Host A knows that the destination is not local, it will send the ARP to its configured default gateway, which is Router1.

QUESTION 120
The network manager has requested a 300-workstation expansion of the network. The workstations are to be installed in a single broadcast domain, but each workstation must have its own collision domain. The expansion is to be as cost-effective as possible while still meeting the requirements. Which three items will adequately fulfill the request? (Choose three).

A. one IP subnet with a mask of 255.255.254.0
B. two IP subnets with a mask of 255.255.255.0
C. seven 48-port hubs
D. seven 48-port switches
E. one router interface
F. seven router interfaces

Correct Answer: ADE
Section: (none)
Explanation

Explanation/Reference:
Explanation:
of 255.255.254.0 can absorb 510 hosts being 23 bits mask and also 7*48 port switches can handle this much hosts and router interface is required to be minimum to avoid unnecessary wastage hence the answers.

QUESTION 121
What are two common TCP applications? (Choose two.)

A. TFTP
B. SMTP
C. SNMP
D. FTP
E. DNS

Correct Answer: BD
Section: (none)
Explanation

Explanation/Reference:
Explanation:
SMTP uses TCP port 25, while FTP uses TCP ports 20 and 21.
http://pentestlab.wordpress.com/2012/03/05/common-tcpip-ports/

QUESTION 122
Refer to the exhibit. SwitchA receives the frame with the addressing shown in the exhibit. According to the command output also shown in the exhibit, how will SwitchA handle this frame?

SwitchA# **show mac-address-table**

< non-essential output omitted >

Destination Address	Address Type	VLAN	Destination Port
00b0.d056.fe4d	Dynamic	1	FastEthernet0/3
00b0.d043.ac2e	Dynamic	1	FastEthernet0/4
00b0.d0fe.ac32	Dynamic	1	FastEthernet0/5
00b0.d0da.cb56	Dynamic	1	FastEthernet0/6

Frame received by SwitchA:

Source MAC	Destination MAC	Source IP	Destination IP
00b0.d056.fe4d	00b0.d0da.895a	192.168.40.5	192.168.40.6

A. It will drop the frame.
B. It will forward the frame out port Fa0/6 only.
C. It will forward the frame out port Fa0/3 only.
D. It will flood the frame out all ports.
E. It will flood the frame out all ports except Fa0/3.

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:
Explanation:
When frame receives the frame, it checks the source address on MAC table if MAC address found in MAC table it tries to forward if not in MAC table adds the Address on MAC table. After checking the source address, it checks the destination address on MAC table, if MAC address found on MAC table it forwards to proper ports otherwise floods on all ports except the source port.

QUESTION 123
Refer to the exhibit. Which default gateway address should be assigned to HostA?

A. 192.168.1.1
B. 192.168.1.65
C. 192.168.1.66
D. 192.168.1.129
E. 10.1.1.1
F. 10.1.1.2

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Default gateway must be a router that is on the same local subnet as the hosts that are attached to it. Switches should not be configured as default gateways.

QUESTION 124
What does a host on an Ethernet network do when it is creating a frame and it does not have the destination address?

A. drops the frame
B. sends out a Layer 3 broadcast message
C. sends a message to the router requesting the address
D. sends out an ARP request with the destination IP address

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Understanding this concept is prime for understanding that when switch receives the data frame from the host not having the MAC address already in the MAC table, it will add the MAC address to the source port on the

MAC address table and sends the data frame. If the switch already has the MAC address in its table for the destination, it will forward the frame directly to the destination port. If it was not already in its MAC table, then they frame would have been flooded out all ports except for the port that it came from.

QUESTION 125
Refer to the exhibit. The ports that are shown are the only active ports on the switch. The MAC address table is shown in its entirety. The Ethernet frame that is shown arrives at the switch. What two operations will the switch perform when it receives this frame? (Choose two.)

A. The MAC address of 0000.00aa.aaaa will be added to the MAC address table.
B. The MAC address of 0000.00dd.dddd will be added to the MAC address table.
C. The frame will be forwarded out port fa0/3 only.
D. The frame will be forwarded out fa0/1, fa0/2, and fa0/3.
E. The frame will be forwarded out all the active ports.

Correct Answer: AD
Section: (none)
Explanation

Explanation/Reference:
Explanation:
If the switch already has the MAC address in its table for the destination, it will forward the frame directly to the destination port. If it was not already in its MAC table, then they frame would have been flooded out all ports except for the port that it came from. It will also add the MAC address of the source device to its MAC address table.

QUESTION 126
Refer to the exhibit. What must be configured to establish a successful connection from Host A to switch SW-A through router RT-A?

A. VLAN 1 on RT-A
B. IP routing on SW-A
C. default gateway on SW-A
D. crossover cable connecting SW-A and RT-A

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
In order for the switch to reach networks that are not local, such as networks attached to different interfaces of the router, it will need to set its default gateway to be the IP address of the attached router.

QUESTION 127
A switch receives a frame on one of its ports. There is no entry in the MAC address table for the destination MAC address. What will the switch do with the frame?

A. drop the frame
B. forward it out of all ports except the one that received it
C. forward it out of all ports
D. store it until it learns the correct port

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Understanding this concept is prime for understanding that when switch receives the data frame from the host not having the MAC address already in the MAC table, it will add the MAC address to the source port on the MAC address table and sends the data frame. If the switch already has the MAC address in its table for the destination, it will forward the frame directly to the destination port. If it was not already in its MAC table, then they frame would have been flooded out all ports except for the port that it came from.

QUESTION 128
Which two characteristics apply to Layer 2 switches? (Choose two.)

A. increases the number of collision domains
B. decreases the number of collision domains
C. implements VLAN
D. decreases the number of broadcast domains
E. uses the IP address to make decisions for forwarding data packets

Correct Answer: AC

Section: (none)
Explanation

Explanation/Reference:
Explanation:
Layer 2 switches offer a number of benefits to hubs, such as the use of VLANs and each switch port is in its own separate collision domain, thus eliminating collisions on the segment.

QUESTION 129
Which two commands will display the current IP address and basic Layer 1 and 2 status of an interface? (Choose two.)

A. router#show version
B. router#show ip interface
C. router#show protocols
D. router#show controllers
E. router#show running-config

Correct Answer: BC
Section: (none)
Explanation

Explanation/Reference:

QUESTION 130
Which two characteristics describe the access layer of the hierarchical network design model? (Choose two.)

A. layer 3 support
B. port security
C. redundant components
D. VLANs
E. PoE

Correct Answer: BD
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The primary function of an access-layer is to provide network access to the end user.
The hardware and software attributes of the access layer that support high availability include security services for additional security against unauthorized access to the network through the use of tools such as 802.1x, port security, DHCP snooping, Dynamic ARP Inspection, and IP Source Guard.

QUESTION 131
What is the purpose of assigning an IP address to a switch?

A. provides local hosts with a default gateway address
B. allows remote management of the switch
C. allows the switch to respond to ARP requests between two hosts
D. ensures that hosts on the same LAN can communicate with each other

Correct Answer: B

Section: (none)
Explanation

Explanation/Reference:
Explanation:
Switch is a layer 2 device and doesn't use network layer for packet forwarding. The IP address may be used only for administrative purposes such as Telnet access or for network management purposes.

QUESTION 132
What is the subnet address of 172.16.159.159/22?

A. 172.16.0.0
B. 172.16.128.0
C. 172.16.156.0
D. 172.16.159.0
E. 172.16.159.128
F. 172.16.192.0

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Converting to binary format it comes to
11111111.11111111.11111100.00000000 or
255.255.252.0
Starting with 172.16.0.0 and having increment of 4 we get.

QUESTION 133
Refer to the exhibit. The internetwork is using subnets of the address 192.168.1.0 with a subnet mask of 255.255.255.224. The routing protocol in use is RIP version 1. Which address could be assigned to the FastEthernet interface on RouterA?

A. 192.168.1.31
B. 192.168.1.64
C. 192.168.1.127
D. 192.168.1.190
E. 192.168.1.192

Correct Answer: D

Section: (none)
Explanation

Explanation/Reference:
Explanation:
Subnet mask 255.255.255.224 with CIDR of /27 which results in 32 hosts per.
192.168.1.31 is the broadcast address for sunbet '0' 192.168.1.64 is the network address for subnet '2'
192.168.1.127 is the broadcast address for subnet '3' 192.168.1.192 is the network address for subnet '6'

Subnet	Network Address	Starting Host	End Host	Broadcast	Netmask
0	192.168.1.0	192.168.1.1	192.168.1.30	192.168.1.31	255.255.255.224
1	192.168.1.32	192.168.1.33	192.168.1.62	192.168.1.63	255.255.255.224
2	192.168.1.64	192.168.1.65	192.168.1.94	192.168.1.95	255.255.255.224
3	192.168.1.96	192.168.1.97	192.168.1.126	192.168.1.127	255.255.255.224
4	192.168.1.128	192.168.1.129	192.168.1.158	192.168.1.159	255.255.255.224
5	192.168.1.160	192.168.1.161	192.168.1.190	192.168.1.191	255.255.255.224
6	192.168.1.192	192.168.1.193	192.168.1.222	192.168.1.223	255.255.255.224
7	192.168.1.224	192.168.1.225	192.168.1.254	192.168.1.255	255.255.255.224

QUESTION 134
What is the network address for the host with IP address 192.168.23.61/28?

A. 192.168.23.0
B. 192.168.23.32
C. 192.168.23.48
D. 192.168.23.56
E. 192.168.23.60

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
convert bit-length prefix to quad-dotted decimal representation, then from it find the number of bits used for subnetting you can find previously calculated number of subnets by separating subnets each having value of last bit used for subnet masking Find that your IP address is in which subnet, that subnet's first address is network address and last address is broadcast address. Based on above steps the answer is option C.

QUESTION 135
What is the best practice when assigning IP addresses in a small office of six hosts?

A. Use a DHCP server that is located at the headquarters.
B. Use a DHCP server that is located at the branch office.
C. Assign the addresses by using the local CDP protocol.
D. Assign the addresses statically on each node.

Correct Answer: D
Section: (none)

Explanation

Explanation/Reference:
Explanation:
Its best to use static addressing scheme where the number of systems is manageable rather than use dynamic protocol as it is easy to operate and manage.

QUESTION 136
Given a Class C IP address subnetted with a /30 subnet mask, how many valid host IP addresses are available on each of the subnets?

A. 1
B. 2
C. 4
D. 8
E. 252
F. 254

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
/30 CIDR corresponds to mask 55.255.255.252 whose binary is 11111100 which means 6 subnet bits and 2 host bits which means 62 subnets and 2 hosts per subnet.

QUESTION 137
Which one of the following IP addresses is the last valid host in the subnet using mask 255.255.255.224?

A. 192.168.2.63
B. 192.168.2.62
C. 192.168.2.61
D. 192.168.2.60
E. 192.168.2.32

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
With the 224 there are 8 networks with increments of 32 One of these is 32 33 62 63 where 63 is broadcast so 62 is last valid host out of given choices.

QUESTION 138
An administrator is in the process of changing the configuration of a router. What command will allow the administrator to check the changes that have been made prior to saving the new configuration?

A. Router# show startup-config
B. Router# show current-config
C. Router# show running-config
D. Router# show memory
E. Router# show flash

F. Router# show processes

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
This command followed by the appropriate parameter will show the running config hence the admin will be able to see what changes have been made, and then they can be saved.

QUESTION 139
Which router command will configure an interface with the IP address 10.10.80.1/19?

A. router(config-if)# ip address 10.10.80.1/19
B. router(config-if)# ip address 10.10.80.1 255.255.0.0
C. router(config-if)# ip address 10.10.80.1 255.255.255.0
D. router(config-if)# ip address 10.10.80.1 255.255.224.0
E. router(config-if)# ip address 10.10.80.1 255.255.240.0
F. router(config-if)# ip address 10.10.80.1 255.255.255.240

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
255.255.224 equal /19 in CIDR format hence the answer

QUESTION 140
Refer to the exhibit.

Which two statements are correct? (Choose two.)

A. This is a default route.
B. Adding the subnet mask is optional for the ip route command.
C. This will allow any host on the 172.16.1.0 network to reach all known destinations beyond RouterA.

D. This command is incorrect, it needs to specify the interface, such as s0/0/0 rather than an IP address.
E. The same command needs to be entered on RouterA so that hosts on the 172.16.1.0 network can reach network 10.0.0.0.

Correct Answer: AC
Section: (none)
Explanation

Explanation/Reference:
Explanation:
This is obviously the default value for the route which is set between the routers and since it is entered in such a manner that it ensures connectivity between the stub network and any host lying beyond RouterA.

QUESTION 141
Refer to the exhibit. Host A can communicate with Host B but not with Hosts C or D. How can the network administrator solve this problem?

A. Configure Hosts C and D with IP addresses in the 192.168.2.0 network.
B. Install a router and configure a route to route between VLANs 2 and 3.
C. Install a second switch and put Hosts C and D on that switch while Hosts A and B remain on the original switch.
D. Enable the VLAN trunking protocol on the switch.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Two VLANs require a router in between otherwise they cannot communicate through a simple switch mechanism.

QUESTION 142
What does administrative distance refer to?

A. the cost of a link between two neighboring routers
B. the advertised cost to reach a network
C. the cost to reach a network that is administratively set
D. a measure of the trustworthiness of a routing information source

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Administrative distance is the first criterion that a router uses to determine which routing protocol to use if two protocols provide route information for the same destination. Administrative distance is a measure of the trustworthiness of the source of the routing information. The smaller the administrative distance value, the more reliable the protocol.

QUESTION 143
Which IOS command is used to initiate a login into a VTY port on a remote router?

A. router# login
B. router# telnet
C. router# trace
D. router# ping
E. router(config)# line vty 0 5
F. router(config-line)# login

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
VTY ports are telnet ports hence command B will initiate login to the telnet port.

QUESTION 144
In the configuration of NAT, what does the keyword overload signify?

A. When bandwidth is insufficient, some hosts will not be allowed to access network translation.
B. The pool of IP addresses has been exhausted.
C. Multiple internal hosts will use one IP address to access external network resources.
D. If the number of available IP addresses is exceeded, excess traffic will use the specified address pool.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Overload simply means using multiple hosts to access the network using the same translated IP address.

QUESTION 145
What happens when computers on a private network attempt to connect to the Internet through a Cisco router running PAT?

A. The router uses the same IP address but a different TCP source port number for each connection.
B. An IP address is assigned based on the priority of the computer requesting the connection.
C. The router selects an address from a pool of one-to-one address mappings held in the lookup table.
D. The router assigns a unique IP address from a pool of legally registered addresses for the duration of the connection.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
http://www.cisco.com/en/US/docs/security/asa/asa82/configuration/guide/nat_staticpat.html
Static PAT translations allow a specific UDP or TCP port on a global address to be translated to a specific port on a local address. That is, both the address and the port numbers are translated.
Static PAT is the same as static NAT, except that it enables you to specify the protocol (TCP or UDP) and port for the real and mapped addresses. Static PAT enables you to identify the same mapped address across many different static statements, provided that the port is different for each statement. You cannot use the same mapped address for multiple static NAT statements.
Port Address Translation makes the PC connect to the Internet but using different TCP source port.

QUESTION 146
When configuring NAT, which address translation type is considered the Internet interface?

A. local
B. inside
C. global
D. outside

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Network address translation or NAT requires the Internet to be considered as an outside interface else it won't serve the purpose it intends to.

QUESTION 147
The ip helper-address command does what?

A. assigns an IP address to a host
B. resolves an IP address from a DNS server
C. relays a DHCP request across networks
D. resolves an IP address overlapping issue

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
When the DHCP client sends the DHCP request packet, it doesn't have an IP address. So it uses the all-zeroes address, 0.0.0.0, as the IP source address. And it doesn't know how to reach the DHCP server, so it

uses a general broadcast address, 255.255.255.255, for the destination. So the router must replace the source address with its own IP address, for the interface that received the request. And it replaces the destination address with the address specified in the ip helper- address command. The client device's MAC address is included in the payload of the original DHCP request packet, so the router doesn't need to do anything to ensure that the server receives this information.

QUESTION 148
Refer to the exhibit.

```
Router# configure terminal
Router(config)# hostname Router1
Router(config)# enable secret sanfran
Router(config)# enable password cisco
Router(config)# line vty 0 4
Router(config-line)# password sanjose
Router(config-line)#
```

The network administrator made the entries that are shown and then saved the configuration. From a console connection, what password or password sequence is required for the administrator to access privileged mode on Router1?

A. cisco
B. sanfran
C. sanjose
D. either cisco or sanfran

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The enable secret password takes precedence over the enable password, so sanfran will be used.

QUESTION 149
The following commands are entered on the router:

```
Burbank(config)# enable secret fortress
Burbank(config)# line con 0
Burbank(config-line)# login
Burbank(config-line)# password n0way1n
Burbank(config-line)# exit
Burbank(config)# service password-encryption
```

What is the purpose of the last command entered?

A. to require the user to enter an encrypted password during the login process
B. to prevent the vty, console, and enable passwords from being displayed in plain text in the configuration files
C. to encrypt the enable secret password

D. to provide login encryption services between hosts attached to the router

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Certain types of passwords, such as Line passwords, by default appear in clear text in the configuration file. You can use the service password-encryption command to make them more secure. Once this command is entered, each password configured is automatically encrypted and thus rendered illegible inside the configuration file (much as the Enable/Enable Secret passwords are). Securing Line passwords is doubly important in networks on which TFTP servers are used, because TFTP backup entails routinely moving config files across networks--and config files, of course, contain Line passwords.

QUESTION 150
What is the effect of using the service password-encryption command?

A. Only the enable password will be encrypted.
B. Only the enable secret password will be encrypted.
C. Only passwords configured after the command has been entered will be encrypted.
D. It will encrypt the secret password and remove the enable secret password from the configuration.
E. It will encrypt all current and future passwords.

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Encryption further adds a level of security to the system as anyone having access to the database of passwords cannot reverse the process of encryption to know the actual passwords which isn't the case if the passwords are stored simply.

QUESTION 151
A company has placed a networked PC in a lobby so guests can have access to the corporate directory. A security concern is that someone will disconnect the directory PC and re-connect their laptop computer and have access to the corporate network. For the port servicing the lobby, which three configuration steps should be performed on the switch to prevent this? (Choose three.)

A. Enable port security.
B. Create the port as a trunk port.
C. Create the port as an access port.
D. Create the port as a protected port.
E. Set the port security aging time to 0.
F. Statically assign the MAC address to the address table.
G. Configure the switch to discover new MAC addresses after a set time of inactivity.

Correct Answer: ACF
Section: (none)
Explanation

Explanation/Reference:
Explanation:
If port security is enabled and the port is only designated as access port, and finally static MAC address is

assigned, it ensures that even if a physical connection is done by taking out the directory PC and inserting personal laptop or device, the connection cannot be made to the corporate network, hence ensuring safety.

QUESTION 152
How can you ensure that only the MAC address of a server is allowed by switch port Fa0/1?

A. Configure port Fa0/1 to accept connections only from the static IP address of the server.
B. Configure the server MAC address as a static entry of port security.
C. Use a proprietary connector type on Fa0/1 that is incomputable with other host connectors.
D. Bind the IP address of the server to its MAC address on the switch to prevent other hosts from spoofing the server IP address.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
When the MAC address is configured as static entry, no other address is allowed.

QUESTION 153
Refer to the exhibit.

```
interface vlan 1
ip address 192.168.17.253  255.255.255.240
no shutdown
exit
ip default-gateway 192.168.17.1
line vty 0 15
password cisco
login
exit
```

A network administrator has configured a Catalyst 2950 switch for remote management by pasting into the console the configuration commands that are shown in the exhibit. However, a Telnet session cannot be successfully established from a remote host. What should be done to fix this problem?

A. Change the first line to interface fastethernet 0/1.
B. Change the first line to interface vlan 0/1.
C. Change the fifth line to ip default-gateway 192.168.17.241.
D. Change the fifth line to ip route 0.0.0.0 0.0.0.0 192.168.17.1.
E. Change the sixth line to line con 0.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The default gateway for remote session is 192.168.17.241 and not the one given in the exhibit.

QUESTION 154
Which IP addresses are valid for hosts belonging to the 10.1.160.0/20 subnet? (Choose three.)

A. 10.1.168.0
B. 10.1.176.1
C. 10.1.174.255
D. 10.1.160.255
E. 10.1.160.0
F. 10.1.175.255

Correct Answer: ACD
Section: (none)
Explanation

Explanation/Reference:
Explanation:
All IP address in IP ranges between: 10.1.160.1 and 10.1.175.254 are valid as shown below Address: 10.1.160.0 00001010.00000001.1010 0000.00000000 Netmask:255.255.240.0 = 2011111111.11111111.1111 0000.00000000 Wildcard:0.0.15.25500000000.00000000.0000 1111.11111111
Which implies that
Network: 10.1.160.0/20 00001010.00000001.1010 0000.00000000
HostMin:10.1.160.100001010.00000001.1010 0000.00000001
HostMax:10.1.175.25400001010.00000001.1010 1111.11111110
Broadcast:10.1.175.25500001010.00000001.1010 1111.11111111

QUESTION 155
Refer to the exhibit.

The junior network support staff provided the diagram as a recommended configuration for the first phase of a four-phase network expansion project. The entire network expansion will have over 1000 users on 14 network segments and has been allocated this IP address space.

192.168.1.1 through 192.168.5.255
192.168.100.1 through 192.168.100.255

What are three problems with this design? (Choose three.)

A. The AREA 1 IP address space is inadequate for the number of users.
B. The AREA 3 IP address space is inadequate for the number of users.
C. AREA 2 could use a mask of /25 to conserve IP address space.
D. The network address space that is provided requires a single network-wide mask.
E. The router-to-router connection is wasting address space.
F. The broadcast domain in AREA 1 is too large for IP to function.

Correct Answer: ACE
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The given IP addresses of areas 1 and 3 along with network masks of 24 cannot accommodate 500 users so are inadequate, while the area 2 is having over capacity so its network mask can be reduced to 25 to accommodate the only 60 users it has.

QUESTION 156
Which OSI layer header contains the address of a destination host that is on another network?

A. application
B. session
C. transport
D. network
E. data link
F. physical

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Only network address contains this information. To transmit the packets the sender uses network address and datalink address. But the layer 2 address represents just the address of the next hop device on the way to the sender. It is changed on each hop. Network address remains the same.

QUESTION 157
Which layer of the TCP/IP stack combines the OSI model physical and data link layers?

A. Internet layer
B. transport layer
C. application layer
D. network access layer

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The Internet Protocol Suite, TCP/IP, is a suite of protocols used for communication over the internet. The TCP/IP model was created after the OSI 7 layer model for two major reasons. First, the foundation of the Internet was built using the TCP/IP suite and through the spread of the World Wide Web and Internet, TCP/IP has been preferred. Second, a project researched by the Department of Defense (DOD) consisted of creating the TCP/IP protocols. The DOD's goal was to bring international standards which could not be met by the OSI model. Since the DOD was the largest software consumer and they preferred the TCP/IP suite, most vendors used this model rather than the OSI. Below is a side by side comparison of the TCP/IP and OSI models.
TCP/IP Model
VS.
OSI Model Application Layer 7
Application
Layer 6
Presentation

Layer 5
Session Transport Layer 4
Transport Internet Layer 3
Network Network Access Layer 2
Data Link
Layer 1
Physical

QUESTION 158
Which protocol uses a connection-oriented service to deliver files between end systems?

A. TFTP
B. DNS
C. FTP
D. SNMP
E. RIP

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
FTP is an acronym for File Transfer Protocol. As the name suggests, FTP is used to transfer files between computers on a network. You can use FTP to exchange files between computer accounts, transfer files between an account and a desktop computer, or access online software archives

QUESTION 159
Refer to the exhibit.

If the hubs in the graphic were replaced by switches, what would be virtually eliminated?

A. broadcast domains
B. repeater domains

C. Ethernet collisions
D. signal amplification
E. Ethernet broadcasts

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Modern wired networks use a network switch to eliminate collisions. By connecting each device directly to a port on the switch, either each port on a switch becomes its own collision domain (in the case of half duplex links) or the possibility of collisions is eliminated entirely in the case of full duplex links.

QUESTION 160
Refer to the exhibit.

If host A sends an IP packet to host B, what will the source physical address be in the frame when it reaches host B?

A. 10.168.10.99
B. 10.168.11.88
C. A1:A1:A1:A1:A1:A1
D. B2:B2:B2:B2:B2:B2
E. C3:C3:C3:C3:C3:C3
F. D4:D4:D4:D4:D4:D4

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:
Explanation:
When packets transfer from one host to another across a routed segment, the source IP address always remains the same source IP address, and the source physical (MAC) address will be the existing router's interface address. Similarly, the destination IP address always remains the same and the destination physical (MAC) address is the destination router's interface address.

QUESTION 161
Refer to the exhibit.

	IP Address	MAC Address
HostA	192.168.1.5	abcd.1123.0045
fa0/0 (Toronto)	192.168.1.1	abcd.2246.0035
fa0/0 (Oshawa)	192.168.7.1	aabb.7777.3333
FTP Server	192.168.7.17	aabb.5555.2222

HostX is transferring a file to the FTP server. Point A represents the frame as it goes toward the Toronto router. What will the Layer 2 destination address be at this point?

A. abcd.1123.0045
B. 192.168.7.17
C. aabb.5555.2222
D. 192.168.1.1
E. abcd.2246.0035

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:
Explanation:
For packets destined to a host on another IP network, the destination MAC address will be the LAN interface of the router. Since the FTP server lies on a different network, the host will know to send the frame to its default gateway, which is Toronto.

QUESTION 162
Which network device functions only at Layer 1 of the OSI model?

A.

B.

C.

D.

E.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Most hubs are amplifying the electrical signal; therefore, they are really repeaters with several ports. Hubs and repeaters are Layer 1 (physical layer) devices.

QUESTION 163
Refer to the exhibit.

The host in Kiev sends a request for an HTML document to the server in Minsk. What will be the source IP address of the packet as it leaves the Kiev router?

A. 10.1.0.1
B. 10.1.0.5

C. 10.1.0.6
D. 10.1.0.14
E. 10.1.1.16
F. 10.1.2.8

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Although the source and destination MAC address will change as a packet traverses a network, the source and destination IP address will not unless network address translation (NAT) is being done, which is not the case here.

QUESTION 164
Refer to the exhibit.

As packets travel from Mary to Robert, which three devices will use the destination MAC address of the packet to determine a forwarding path? (Choose three.)

A. Hub1
B. Switch1
C. Router1
D. Switch2
E. Router2
F. Switch3

Correct Answer: BDF
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Switches use the destination MAC address information for forwarding traffic, while routers use the destination IP address information. Local Area Networks employ Layer 2 Switches and Bridges to forward and filter network traffic. Switches and Bridges operate at the Data Link Layer of the Open System Interconnect Model

(OSI). Since Switches and Bridges operate at the Layer 2 they operate more intelligently than hubs, which work at Layer 1 (Physical Layer) of the OSI. Because the switches and bridges are able to listen to the traffic on the wire to examine the source and destination MAC address. Being able to listen to the traffic also allows the switches and bridges to compile a MAC address table to better filter and forward network traffic. To accomplish the above functions switches and bridges carry out the following tasks:
MAC address learning by a switch or a bridge is accomplished by the same method. The switch or bridge listens to each device connected to each of its ports and scan the incoming frame for the source MAC address. This creates a MAC address to port map that is cataloged in the switches/bridge MAC database. Another name for the MAC address table is content addressable memory orCAM table. When a switch or bridge is listening o the network traffic, it receives each frame and compares it to the MAC address table. By checking the MAC table the switch/ bridge are able o determine which port the frame came in on. If the frame is on the MAC table the frame is filtered or transmitted on only that port. If the switch determines that the frame is not on the MAC table, the frame is forwarded out to all ports except the incoming port.

QUESTION 165
Refer to the exhibit.

Mary is sending an instant message to Robert. The message will be broken into a series of packets that will traverse all network devices. What addresses will populate these packets as they are forwarded from Router1 to Router2?

A.

B.

C.

D.

E.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The Source and Destination IP address is not going to change. Host 1 IP address will stay as being the source IP and the Host 2 IP address will stay the destination IP address. Those two are not going to change. For the MAC address it is going to change each time it goes from one hope to another. (Except switches... they don't change anything) Frame leaving HOST 1 is going to have a source MAC of Host 1 and a destination MAC of Router1. Router 1 is going to strip that info off and then will make the source MAC address of Router1's exiting interface, and making Router2's interface as the destination MAC address. Then the same will happen... Router2 is going to change the source/destination info to the source MAC being the Router2 interface that it is going out, and the destination will be Host2's MAC address.

QUESTION 166
Refer to the exhibit.

A network device needs to be installed in the place of the icon labeled Network Device to accommodate a leased line attachment to the Internet. Which network device and interface configuration meets the minimum requirements for this installation?

A. a router with two Ethernet interfaces

B. a switch with two Ethernet interfaces
C. a router with one Ethernet and one serial interface
D. a switch with one Ethernet and one serial interface
E. a router with one Ethernet and one modem interface

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Only a router can terminate a leased line attachment access circuit, and only a router can connect two different IP networks. Here, we will need a router with two interfaces, one serial connection for the line attachment and one Ethernet interface to connect to the switch on the LAN.

QUESTION 167
Which transport layer protocol provides best-effort delivery service with no acknowledgment receipt required?

A. HTTP
B. IP
C. TCP
D. Telnet
E. UDP

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:
Explanation:
UDP provides a connectionless datagram service that offers best-effort delivery, which means that UDP does not guarantee delivery or verify sequencing for any datagrams. A source host that needs reliable communication must use either TCP or a program that provides its own sequencing and acknowledgment services.

QUESTION 168
Which layer of the OSI model controls the reliability of communications between network devices using flow control, sequencing and acknowledgments?

A. Physical
B. Data-link
C. Transport
D. Network

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
There are many services that can be optionally provided by a transport-layer protocol, and different protocols may or may not implement them. Connection-oriented communication: It is normally easier for an application to interpret a connection as a data stream rather than having to deal with the underlying connection-less models, such as the datagram model of the User Datagram Protocol (UDP) and of the Internet Protocol (IP). Byte orientation:

Rather than processing the messages in the underlying communication system format, it is often easier for an application to process the data stream as a sequence of bytes. This simplification helps applications work with various underlying message formats. Same order delivery: The network layer doesn't generally guarantee that packets of data will arrive in the same order that they were sent, but often this is a desirable feature. This is usually done through the use of segment numbering, with the receiver passing them to the application in order. This can cause head-of-line blocking. Reliability: Packets may be lost during transport due to network congestion and errors. By means of an error detection code, such as a checksum, the transport protocol may check that the data is not corrupted, and verify correct receipt by sending an ACK or NACK message to the sender. Automatic repeat request schemes may be used to retransmit lost or corrupted data.
Flow control: The rate of data transmission between two nodes must sometimes be managed to prevent a fast sender from transmitting more data than can be supported by the receiving data buffer, causing a buffer overrun. This can also be used to improve efficiency by reducing buffer underrun. Congestion avoidance: Congestion control can control traffic entry into a telecommunications network, so as to avoid congestive collapse by attempting to avoid oversubscription of any of the processing or link capabilities of the intermediate nodes and networks and taking resource reducing steps, such as reducing the rate of sending packets. For example, automatic repeat requests may keep the network in a congested state; this situation can be avoided by adding congestion avoidance to the flow control, including slow-start. This keeps the bandwidth consumption at a low level in the beginning of the transmission, or after packet retransmission. Multiplexing: Ports can provide multiple endpoints on a single node. For example, the name on a postal address is a kind of multiplexing, and distinguishes between different recipients of the same location. Computer applications will each listen for information on their own ports, which enables the use of more than one network service at the same time. It is part of the transport layer in the TCP/IP model, but of the session layer in the OSI model.

QUESTION 169
Refer to the output of the corporate router routing table shown in the graphic. The corporate router receives an IP packet with a source IP address of 192.168.214.20 and a destination address of 192.168.22.3. What will the router do with this packet?

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

C   192.168.13.0/24 is directly connected, Serial0/1
C   192.168.14.0/24 is directly connected, FastEthernet0/0
C   192.168.15.0/24 is directly connected, Serial0/0.102
C   192.168.20.0/24 is directly connected, Serial0/0.117
R   192.168.16.0/24 [120/1] via 192.168.15.2, 00:00:05, Serial0/0.102
R   192.168.17.0/24 [120/1] via 192.168.15.2, 00:00:05, Serial0/0.102
R   192.168.30.0/24 [120/2] via 192.168.20.2, 00:00:25, Serial0/0.117
R   192.168.19.0/24 [120/1] via 192.168.20.2, 00:00:25, Serial0/0.117
R   192.168.21.0/24 [120/3] via 192.168.20.2, 00:00:25, Serial0/0.117
R   192.168.214.0/24 [120/1] via 192.168.14.2, 00:00:22, FastEthernet0/0
```

A. It will encapsulate the packet as Frame Relay and forward it out interface Serial 0/0.117.
B. It will discard the packet and send an ICMP Destination Unreachable message out interface FastEthernet 0/0.
C. It will forward the packet out interface Serial 0/1 and send an ICMP Echo Reply message out interface serial 0/0.102.
D. It will change the IP packet to an ARP frame and forward it out FastEthernet 0/0.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 170
An administrator must assign static IP addresses to the servers in a network. For network 192.168.20.24/29, the router is assigned the first usable host address while the sales server is given the last usable host address. Which of the following should be entered into the IP properties box for the sales server?

A. IP address: 192.168.20.14
   Subnet Mask: 255.255.255.248
   Default Gateway: 192.168.20.9
B. IP address: 192.168.20.254
   Subnet Mask: 255.255.255.0
   Default Gateway: 192.168.20.1
C. IP address: 192.168.20.30
   Subnet Mask: 255.255.255.248
   Default Gateway: 192.168.20.25
D. IP address: 192.168.20.30
   Subnet Mask: 255.255.255.240
   Default Gateway: 192.168.20.17
E. IP address: 192.168.20.30
   Subnet Mask: 255.255.255.240
   Default Gateway: 192.168.20.25

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 171
What is the default administrative distance of the OSPF routing protocol?

A. 90
B. 100
C. 110
D. 120
E. 130
F. 170

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Default Distance Value Table
This table lists the administrative distance default values of the protocols that Cisco supports:

Route Source	Default Distance Values
Connected interface	0
Static route	1
Enhanced Interior Gateway Routing Protocol (EIGRP) summary route	5
External Border Gateway Protocol (BGP)	20
Internal EIGRP	90
IGRP	100
OSPF	110
Intermediate System-to-Intermediate System (IS-IS)	115
Routing Information Protocol (RIP)	120
Exterior Gateway Protocol (EGP)	140
On Demand Routing (ODR)	160
External EIGRP	170
Internal BGP	200
Unknown*	255

If the administrative distance is 255, the router does not believe the source of that route and does not install the route in the routing table.

QUESTION 172
The network administrator has found the following problem. The remote networks 172.16.10.0, 172.16.20.0, and 172.16.30.0 are accessed through the Central router's serial 0/0 interface. No users are able to access 172.16.20.0. After reviewing the command output shown in the graphic, what is the most likely cause of the problem?

```
Central# debug ip rip

<some output text omitted>

Central#debug ip rip
1d00h: RIP: received v1 update from 172.16.100.2 on Serial0/0
1d00h:     172.16.10.0 in 1 hops
1d00h:     172.16.20.0 in 1 hops
1d00h:     172.16.30.0 in 1 hops

Central# show ip route

Gateway of last resort is not set

    172.16.0.0/24 is subnetted, 8 subnets
C      172.16.150.0 is directly connected, FastEthernet0/0
C      172.16.220.0 is directly connected, Loopback2
C      172.16.210.0 is directly connected, Loopback1
C      172.16.200.0 is directly connected, Loopback0
R      172.16.30.0 [120/1] via 172.16.100.2, 00:00:07, Serial0/0
S     172.16.20.0 [1/0] via 172.16.150.15
R      172.16.10.0 [120/1] via 172.16.100.2, 00:00:07, Serial0/0
C      172.16.100.0 is directly connected, Serial0/0
```

A. no gateway of last resort on Central
B. Central router's not receiving 172.16.20.0 update
C. incorrect static route for 172.16.20.0
D. 172.16.20.0 not located in Central's routing table

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 173
Refer to the exhibit.

```
RouterA# show ip route
Codes: C - connected, S - static, I - IGRP, R - RIP, M - mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2, E - EGP
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route

Gateway of last resort is 0.0.0.0 to network 0.0.0.0

     172.16.0.0/24 is subnetted, 1 subnets
C       172.16.1.0 is directly connected, Ethernet0/1
     10.0.0.0/30 is subnetted, 1 subnets
C       10.255.255.200 is directly connected, Serial0/0
S*   0.0.0.0/0 is directly connected, Serial0/0
RouterA#
```

The output is from a router in a large enterprise. From the output, determine the role of the router.

A. A Core router.
B. The HQ Internet gateway router.
C. The WAN router at the central site.
D. Remote stub router at a remote site.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 174
Refer to the exhibit. For security reasons, information about RTA, including platform and IP addresses, should not be accessible from the Internet. This information should, however, be accessible to devices on the internal networks of RTA. Which command or series of commands will accomplish these objectives?

A. RTA(config)#no cdp run
B. RTA(config)#no cdp enable
C. RTA(config)#interface s0/0
   RTA(config-if)#no cdp run
D. RTA(config)#interface s0/0
   RTA(config-if)#no cdp enable

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 175
Refer to the exhibit.

The two connected ports on the switch are not turning orange or green. What would be the most effective steps to troubleshoot this physical layer problem? (Choose three.)

A. Ensure that the Ethernet encapsulations match on the interconnected router and switch ports.
B. Ensure that cables A and B are straight-through cables.
C. Ensure cable A is plugged into a trunk port.
D. Ensure the switch has power.
E. Reboot all of the devices.
F. Reseat all cables.

Correct Answer: BDF
Section: (none)
Explanation

Explanation/Reference:

QUESTION 176
Which command can you use to manually assign a static IPV6 address to a router interface?

A. ipv6 address PREFIX_1::1/64
B. ipv6 autoconfig 2001:db8:2222:7272::72/64
C. ipv6 autoconfig
D. ipv6 address 2001:db8:2222:7272::72/64

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 177
The network administrator is using a Windows PC application that is called putty.exe for remote communication to a switch for network troubleshooting. Which two protocols could be used during this

communication? (Choose two).

A. SNMP
B. HTTP
C. Telnet
D. RMON
E. SSH

Correct Answer: CE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 178
What should be part of a comprehensive network security plan?

A. Allow users to develop their own approach to network security.
B. Physically secure network equipment from potential access by unauthorized individuals.
C. Encourage users to use personal information in their passwords to minimize the likelihood of passwords being forgotten.
D. Delay deployment of software patches and updates until their effect on end-user equipment is well known and widely reported.
E. Minimize network overhead by deactivating automatic antivirus client updates.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 179
Which two of these statements are true of IPv6 address representation? (Choose two.)

A. There are four types of IPv6 addresses: unicast, multicast, anycast, and broadcast.
B. A single interface may be assigned multiple IPv6 addresses of any type.
C. Every IPv6 interface contains at least one loopback address.
D. The first 64 bits represent the dynamically created interface ID.
E. Leading zeros in an IPv6 16 bit hexadecimal field are mandatory.

Correct Answer: BC
Section: (none)
Explanation

Explanation/Reference:
Explanation:
A single interface may be assigned multiple addresses of any type (unicast, anycast, multicast).
Every IPv6-enabled interface must contain at least one loopback and one link-local address.
Optionally, every interface can have multiple unique local and global addresses. IPv6 host addresses can be assigned in multiple ways:
Static configuration
Stateless autoconfiguration

DHCPv6
When IPv6 is used over Ethernet networks, the Ethernet MAC address can be used to generate the 64-bit interface ID for the host. This is called the EUI-64 address. Since MAC addresses use 48 bits, additional bits must be inserted to fill the 64 bits required.
http://www.cisco.com/en/US/technologies/tk648/tk872/technologies_white_paper0900aecd8026003d.pdf

QUESTION 180
A network administrator cannot connect to a remote router by using SSH. Part of the show interfaces command is shown.

```
router#show interfaces
Serial0/1/0 is up, line protocol is down
```

At which OSI layer should the administrator begin troubleshooting?

A. physical
B. data link
C. network
D. transport

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The indication here is "Serial 0 is up, line protocol is down". What causes this indication? Correct me if I am wrong. When you have this indication, a cable unplugged is not a correct answer. If you check the output of your "show interface serial 0" command again, you should notice it as "Serial 0 is down, line protocol is down. Under the "show ip int brief" you should see status = down and protocol = down as opposed to up, down. Because you disconnected the cable, layer 1 will go down, which is indicated by the serial 0 down status. The line protocol status is for layer 2. So, a cable unplugged is not a correct answer to "Serial 0 is up, line protocol is down".

Layer	Function	Examples
Application (Layer 7)	User interface	Telnet, HTTP
Presentation (Layer 6)	Handles encryption & changes to syntax	ASCII/EBCDIC, JPEG/MP3
Session (Layer 5)	Manages multiple applications and maintains synchronisation points	Operating systems, scheduling
Transport (Layer 4)	Provides reliable or best-effort delivery and (optional) error and flow control	TCP, UDP
Network (Layer 3)	Provides logical end-to-end addressing used by routers and hosts	IP
Data Link (Layer 2)	Creates frames from data bits, uses MAC addresses to access endpoints, and provides error detection but no correction	802.3, 802.2, HDLC, Frame Relay
Physical (Layer 1)	Specifies voltage, wire speed, and cable pin-outs	EIA/TIA, V.35

QUESTION 181
Refer to the exhibit.

A person is trying to send a file from a host on Network A of the JAX Company to a server on Network Z of the XYZ Company. The file transfer fails. The host on Network A can communicate with other hosts on Network A. Which command, issued from router RTA, would be the most useful for troubleshooting this problem?

A. show flash:
B. show history
C. show version
D. show interfaces
E. show controllers serial

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 182
Refer to the exhibit.

```
C:\>ipconfig /all

Windows IP Configuration

        Host Name . . . . . . . . . . . . : home-pc
        Primary Dns Suffix  . . . . . . . :
        Node Type . . . . . . . . . . . . : Hybrid
        IP Routing Enabled. . . . . . . . : No
        WINS Proxy Enabled. . . . . . . . : No

Ethernet adapter Local Area Connection 3:

        Connection-specific DNS Suffix  . :
        Description . . . . . . . . . . . : Wired Network Connection
        Physical Address. . . . . . . . . : 00-13-CE-9B-33-93
        Dhcp Enabled. . . . . . . . . . . : No
        IP Address. . . . . . . . . . . . : 10.10.10.2
        Subnet Mask . . . . . . . . . . . : 255.255.255.0
        Default Gateway . . . . . . . . . : 10.10.10.1
C:\>
```

A user cannot reach any web sites on the Internet, but others in the department are not having a problem. What is the most likely cause of the problem?

A. IP routing is not enabled.
B. The default gateway is not in the same subnet.
C. A DNS server address is not reachable by the PC.
D. A DHCP server address is not reachable by the PC.
E. NAT has not been configured on the router that connects to the Internet.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 183
Which option is a valid IPv6 address?

A. 2001:0000:130F::099a::12a
B. 2002:7654:A1AD:61:81AF:CCC1
C. FEC0:ABCD:WXYZ:0067::2A4
D. 2004:1:25A4:886F::1

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:

IPv6 Address Notation
IPv6 addresses are denoted by eight groups of hexadecimal quartets separated by colons in between them.

Following is an example of a valid IPv6 address:
2001:cdba:0000:0000:0000:0000:3257:9652
Any four-digit group of zeroes within an IPv6 address may be reduced to a single zero or altogether omitted.
Therefore, the following IPv6 addresses are similar and equally valid:
2001:cdba:0000:0000:0000:0000:3257:9652
2001:cdba:0:0:0:0:3257:9652
2001:cdba::3257:9652
The URL for the above address will be of the form:
http://[2001:cdba:0000:0000:0000:0000:3257:9652]/
http://www.ipv6.com/articles/general/IPv6-Addressing.htm

QUESTION 184
What is the purpose of the switchport command?

```
Switch(config-if)# switchport port-security maximum 1
Switch(config-if)# switchport port-security mac-address 0018.DE8B.4BF8
```

A. It ensures that only the device with the MAC address 0018.DE8B.4BF8 will be able to connect to the port that is being configured.
B. It informs the switch that traffic destined for MAC address 0018.DE8B.4BF8 should only be sent to the port that is being configured.
C. It will act like an access list and the port will filter packets that have a source or destination MAC of 0018.DE8B.4BF8.
D. The switch will shut down the port of any traffic with source MAC address of 0018.DE8B.4BF8.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 185
Refer to the exhibit.

A network administrator is troubleshooting a connectivity problem on the serial interfaces. The output from the show interfaces command on both routers shows that the serial interface is up, line protocol is down. Given the partial output for the show running-config in the exhibit, what is the most likely cause of this problem?

A. The serial cable is bad.
B. The MTU is incorrectly configured.
C. The Layer 2 framing is misconfigured.
D. The IP addresses are not in the same subnet.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 186
How many bits are contained in each field of an IPv6 address?

A. 24
B. 4
C. 8
D. 16

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
http://www.cisco.com/en/US/technologies/tk648/tk872/technologies_white_paper0900aecd8026003d.pdf

One of the key advantages IPv6 brings is the exponentially larger address space. The following will outline the basic address architecture of IPv6.
128-bit-long addresses
Represented in hexadecimal format:
Uses CIDR principles: prefix/prefix length
x:x:x:x:x:x:x:x, where x is a 16-bit hex field
The last 64 bits are used for the interface ID

QUESTION 187
Refer to the exhibit.

The DHCP settings have recently been changed on the DHCP server and the client is no longer able to reach

network resources. What should be done to correct this situation?

A. Verify that the DNS server address is correct in the DHCP pool.
B. Ping the default gateway to populate the ARP cache.
C. Use the tracert command on the DHCP client to first determine where the problem is located.
D. Clear all DHCP leases on the router to prevent address conflicts.
E. Issue the ipconfig command with the /release and /renew options in a command window.

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:

QUESTION 188
Which three approaches can be used while migrating from an IPv4 addressing scheme to an IPv6 scheme (choose three)

A. static mapping of IPv4 address to IPv6 addresses
B. configuring IPv4 tunnels between IPv6 islands
C. use DHCPv6 to map IPv4 addresses to IPv6 addresses
D. use proxying and translation (NAT-PT) to translate IPv6 packets into IPv4 packets
E. configure IPv6 directly
F. enable dual-stack routing

Correct Answer: BDF
Section: (none)
Explanation

Explanation/Reference:
Explanation:
http://www.opus1.com/ipv6/howdoitransitiontoipv6.html

Connecting IPv6 islands with tunnels
An IPv6 island is a network made of IPv6 links directly connected by IPv6 routers. In the early days of IPv6 deployment, there are many IPv6 islands. IPv6 in IPv4 tunnels are used to connect those islands together. In each island, one (or more) dual stack routers are designated to encapsulate and decapsulate IPv6 packets within IPv4 packets. Different mechanisms have been developed to manage tunnels: automatic tunnels3, configured tunnels3, tunnel brokers3, 6over43, 6to43,...
http://www.petri.co.il/ipv6-transition.htm
Network Address Translation - Protocol Translation (NAT-PT) The NAT-PT method enables the ability to either statically or dynamically configure a translation of a IPv4 network address into an IPv6 network address and vice versa. For those familiar with more typically NAT implementations, the operation is very similar but includes a protocol translation function. NAT-PT also ties in an Application Layer Gateway (ALG) functionality that converts Domain Name System (DNS) mappings between protocols.
Dual Stack
The simplest approach when transitioning to IPv6 is to run IPv6 on all of the devices that are currently running IPv4. If this is something that is possible within the organizational network, it is very easy to implement. However, for many organizations, IPv6 is not supported on all of the IPv4 devices; in these situations other methods must be considered.

QUESTION 189
Refer to the exhibit.

A network technician is asked to design a small network with redundancy. The exhibit represents this design, with all hosts configured in the same VLAN. What conclusions can be made about this design?

A. This design will function as intended.
B. Spanning-tree will need to be used.
C. The router will not accept the addressing scheme.
D. The connection between switches should be a trunk.
E. The router interfaces must be encapsulated with the 802.1Q protocol.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 190
Refer to the exhibit.

```
Finance# show interfaces fastEthernet 0/2
FastEthernet0/2 is down, line protocol is down (notconnect)
  Hardware is Fast Ethernet, address is 0017.596d.2a02
  Description: To Central Fa0/0
  MTU 1500 bytes, BW 100000 Kbit, DLY 100 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Full-duplex, 100Mb/s
  input flow-control is off, output flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:03, output 00:00:00, output hang never
  Last clearing of "show interface" counters never
<output omitted>
```

An administrator replaced the 10/100 Mb NIC in a desktop PC with a 1 Gb NIC and now the PC will not connect to the network. The administrator began troubleshooting on the switch. Using the switch output shown,

what is the cause of the problem?

A. Speed is set to 100Mb/s.
B. Input flow control is off.
C. Encapsulation is set to ARPA.
D. The port is administratively down.
E. The counters have never been cleared.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 191
Refer to the exhibit. A technician is troubleshooting a host connectivity problem. The host is unable to ping a server connected to Switch_A. Based on the results of the testing, what could be the problem?

A. A remote physical layer problem exists.
B. The host NIC is not functioning.
C. TCP/IP has not been correctly installed on the host.
D. A local physical layer problem exists.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 192
Which statement about IPv6 is true?

A. Addresses are not hierarchical and are assigned at random.
B. Only one IPv6 address can exist on a given interface.
C. There are 2.7 billion addresses available.
D. Broadcasts have been eliminated and replaced with multicasts.

Correct Answer: D

Section: (none)
Explanation

Explanation/Reference:
Explanation:
http://technet.microsoft.com/en-us/library/cc757359(v=ws.10).aspx

IPv6 has three types of addresses, which can be categorized by type and scope:
Unicast addresses. A packet is delivered to one interface.
Multicast addresses. A packet is delivered to multiple interfaces.
Anycast addresses. A packet is delivered to the nearest of multiple interfaces (in terms of routing distance).
IPv6 does not use broadcast messages.
Unicast and anycast addresses in IPv6 have the following scopes (for multicast addresses, the scope are built into the address structure):
Link-local. The scope is the local link (nodes on the same subnet). Site-local. The scope is the organization (private site addressing). Global. The scope is global (IPv6 Internet addresses). In addition, IPv6 has special addresses such as the loopback address. The scope of a special address depends on the type of special address.
Much of the IPv6 address space is unassigned.

QUESTION 193
What are two recommended ways of protecting network device configuration files from outside network security threats? (Choose two.)

A. Allow unrestricted access to the console or VTY ports.
B. Use a firewall to restrict access from the outside to the network devices.
C. Always use Telnet to access the device command line because its data is automatically encrypted.
D. Use SSH or another encrypted and authenticated transport to access device configurations.
E. Prevent the loss of passwords by disabling password encryption.

Correct Answer: BD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 194
Refer to the exhibit. A problem with network connectivity has been observed. It is suspected that the cable connected to switch port Fa0/9 on Switch1 is disconnected. What would be an effect of this cable being disconnected?

A. Host B would not be able to access the server in VLAN9 until the cable is reconnected.
B. Communication between VLAN3 and the other VLANs would be disabled.
C. The transfer of files from Host B to the server in VLAN9 would be significantly slower.
D. For less than a minute, Host B would not be able to access the server in VLAN9. Then normal network function would resume.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 195
A receiving host has failed to receive all of the segments that it should acknowledge. What can the host do to improve the reliability of this communication session?

A. decrease the window size
B. use a different source port for the session
C. decrease the sequence number
D. obtain a new IP address from the DHCP server
E. start a new session using UDP

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 196
Which command enables IPv6 forwarding on a cisco router?

A. ipv6 host
B. ipv6 unicast-routing
C. ipv6 local
D. ipv6 neighbor

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Enabling IPv6 on Cisco IOS Software Technology
http://www.ciscopress.com/articles/article.asp?p=31948&seqNum=4

The first step of enabling IPv6 on a Cisco router is the activation of IPv6 traffic forwarding to forward unicast IPv6 packets between network interfaces. By default, IPv6 traffic forwarding is disabled on Cisco routers.
The ipv6 unicast-routing command is used to enable the forwarding of IPv6 packets between interfaces on the router. The syntax for this command is as follows:
Router(config)#ipv6 unicast-routing
The ipv6 unicast-routing command is enabled on a global basis.

QUESTION 197
Refer to the exhibit. A host is connected to switch port fa0/3. The host and switch have been fully configured for IP connectivity as shown. However, the indicator LED on switch port fa0/3 is not on, and the host cannot communicate with any other hosts including those connected to VLAN 2 on the same switch. Based on the given information, what is the problem?

A. switch port fa0/3 is not configured as a trunk port
B. there is a bad cable
C. the switch has been assigned an incorrect subnet mask
D. switch port fa0/3 has been blocked by STP
E. the switch and the host must be in the same subnet

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 198
Identify the four valid IPv6 addresses. (Choose four.)

A. ::
B. ::192:168:0:1

C. 2000::
D. 2001:3452:4952:2837::
E. 2002:c0a8:101::42
F. 2003:dead:beef:4dad:23:46:bb:101

Correct Answer: ABEF
Section: (none)
Explanation

Explanation/Reference:
Explanation:
http://www.intermapper.com/ipv6validator

http://www.ripe.net/lir-services/new-lir/ipv6_reference_card.pdf

Address	Value	Description
Global	2000::/3	These are assigned by the IANA and used on public networks. They are equivalent to IPv4 global (sometimes called public) addresses. ISPs summarize these to provide scalability in the Internet.
Reserved	(range)	Reserved addresses are used for specific types of anycast as well as for future use. Currently about 1/256th of the IPv6 address space is reserved.
Private	FE80::/10	Like IPv4, IPv6 supports private addressing, which is used by devices that don't need to access a public network. The first two digits are FE, and the third digit can range from 8 to F.
Loopback	::1	Like the 127.0.0.1 address in IPv4, 0:0:0:0:0:0:0:1, or ::1, is used for local testing functions; unlike IPv4, which dedicates a complete A class block of addresses for local testing, only one is used in IPv6.
Unspecified	::	0.0.0.0 in IPv4 means "unknown" address. In IPv6, this is represented by 0:0:0:0:0:0:0:0, or ::, and is typically used in the source address field of the packet when an interface doesn't have an address and is trying to acquire one dynamically.

QUESTION 199
Which two statements describe characteristics of IPv6 unicast addressing? (Choose two.)

A. Global addresses start with 2000::/3.
B. Link-local addresses start with FE00:/12.
C. Link-local addresses start with FF00::/10.
D. There is only one loopback address and it is ::1.
E. If a global address is assigned to an interface, then that is the only allowable address for the interface.

Correct Answer: AD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 200
A network administrator is trying to add a new router into an established OSPF network. The networks attached to the new router do not appear in the routing tables of the other OSPF routers. Given the information in the partial configuration shown below, what configuration error is causing this problem?

```
Router(config)# router ospf 1
Router(config-router)# network 10.0.0.0 255.0.0.0 area 0
```

A. The process id is configured improperly.
B. The OSPF area is configured improperly.
C. The network wildcard mask is configured improperly.
D. The network number is configured improperly.
E. The AS is configured improperly.
F. The network subnet mask is configured improperly.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
When configuring OSPF, the mask used for the network statement is a wildcard mask similar to an access list. In this specific example, the correct syntax would have been "network 10.0.0.0 0.0.0.255 area 0."

QUESTION 201
Which statement is true?

A. An IPv6 address is 64 b long and is represented as hexadecimal characters.
B. An IPv6 address is 32 b long and is represented as decimal digits.
C. An IPv6 address is 128 b long and is represented as decimal digits.
D. An IPv6 address is 128 b long and is represented as hexadecimal characters.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
http://www.cisco.com/en/US/technologies/tk648/tk872/technologies_white_paper0900aecd8026003d.pdf

One of the key advantages IPv6 brings is the exponentially larger address space. The following will outline the basic address architecture of IPv6.
128-bit-long addresses
Represented in hexadecimal format:
Uses CIDR principles: prefix/prefix length
x:x:x:x:x:x:x:x, where x is a 16-bit hex field
The last 64 bits are used for the interface ID

QUESTION 202
What information does a router running a link-state protocol use to build and maintain its topological database? (Choose two)

A. hello packets
B. SAP messages sent by other routers
C. LSAs from other routers

D. beacons received on point-to-point links
E. routing tables received from other link-state routers
F. TTL packets from designated routers

Correct Answer: AC
Section: (none)
Explanation

Explanation/Reference:

QUESTION 203

```
ROUTER# show ip route
192.168.12.0/24 is variably subnetted, 9 subnets, 3 masks
C 192.168.12.64 /28 is directly connected, Loopback1
C 192.168.12.32 /28 is directly connected, Ethernet0
C 192.168.12.48 /28 is directly connected, Loopback0
O 192.168.12.236 /30 [110/128] via 192.168.12.233, 00:35:36, Serial0 C
192.168.12.232 /30 is directly connected, Serial0
O 192.168.12.245 /30 [110/782] via 192.168.12.233, 00:35:36, Serial0 O
192.168.12.240 /30 [110/128] via 192.168.12.233, 00:35:36, Serial0 O
192.168.12.253 /30 [110/782] via 192.168.12.233, 00:35:37, Serial0 O
192.168.12.249 /30 [110/782] via 192.168.12.233, 00:35:37, Serial0 O
192.168.12.240/30 [110/128] via 192.168.12.233, 00:35:36, Serial 0
```

To what does the 128 refer to in the router output above?

A. OSPF cost
B. OSPF priority
C. OSPF hop count
D. OSPF ID number
E. OSPF administrative distance

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The first parameter is the Administrative Distance of OSPF (110) while the second parameter is the cost of OSPF.

QUESTION 204
Which of the following describe the process identifier that is used to run OSPF on a router? (Choose two)

A. It is locally significant.
B. It is globally significant.
C. It is needed to identify a unique instance of an OSPF database.
D. It is an optional parameter required only if multiple OSPF processes are running on the router.
E. All routers in the same OSPF area must have the same process ID if they are to exchange routing information.

Correct Answer: AC
Section: (none)
Explanation

Explanation/Reference:
Explanation:
https://learningnetwork.cisco.com/thread/6248

They are locally significant only, and have no bearing on the structure of any OSPF packet or LSA update. So you can have a separate process-id on every single router in your network if you so desire!

QUESTION 205
Open Shortest Path First (OSPF) is a routing protocol developed for Internet Protocol (IP) networks by the Interior Gateway Protocol (IGP) working group of the Internet Engineering Task Force (IETF). What is the default administrative distance of the OSPF routing protocol?

A. 90
B. 100
C. 110
D. 20
E. 130
F. 170

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 206
The internetwork infrastructure of company XYZ consists of a single OSPF area as shown in the graphic. There is concern that a lack of router resources is impeding internetwork performance. As part of examining the router resources, the OSPF DRs need to be known. All the router OSPF priorities are at the default and the router IDs are shown with each router. Which routers are likely to have been elected as DR? (Choose two.)

A. Corp-1
B. Corp-2
C. Corp-3

D. Corp-4
E. Branch-1
F. Branch-2

Correct Answer: DF
Section: (none)
Explanation

Explanation/Reference:
Explanation
There are 2 segments on the topology above which are separated by Corp-3 router. Each segment will have a DR so we have 2 DRs.
To select which router will become DR they will compare their router-IDs. The router with highest (best) router-ID will become DR. The router-ID is chosen in the order below:
+ The highest IP address assigned to a loopback (logical) interface. + If a loopback interface is not defined, the highest IP address of all active router's physical interfaces will be chosen.
In this question, the IP addresses of loopback interfaces are not mentioned so we will consider IP addresses of all active router's physical interfaces. Router Corp-4 (10.1.40.40) & Branch-2 (10.2.20.20) have highest "active" IP addresses so they will become DRs.

QUESTION 207
Which address are OSPF hello packets addressed to on point-to-point networks?

A. 224.0.0.5
B. 172.16.0.1
C. 192.168.0.5
D. 223.0.0.1
E. 254.255.255.255

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Why does the show ip ospf neighbor Command Reveal Neighbors in the Init State?
http://www.cisco.com/en/US/tech/tk365/technologies_tech_note09186a0080093f11.shtml

OSPF hello packets have a destination address of 224.0.0.5 (the all ospf routers multicast address).

QUESTION 208
Which statements describe the routing protocol OSPF? (Choose three)

A. It supports VLSM.
B. It is used to route between autonomous systems.
C. It confines network instability to one area of the network.
D. It increases routing overhead on the network.
E. It allows extensive control of routing updates.
F. It is simpler to configure than RIP v2.

Correct Answer: ACE
Section: (none)
Explanation

Explanation/Reference:

Explanation:
The OSPF protocol is based on link-state technology, which is a departure from the Bellman-Ford vector based algorithms used in traditional Internet routing protocols such as RIP. OSPF has introduced new concepts such as authentication of routing updates, Variable Length Subnet Masks (VLSM), route summarization, and so forth.
OSPF uses flooding to exchange link-state updates between routers. Any change in routing information is flooded to all routers in the network. Areas are introduced to put a boundary on the explosion of link-state updates. Flooding and calculation of the Dijkstra algorithm on a router is limited to changes within an area.

QUESTION 209
DRAG DROP
Drag and drop the descriptions of logging from the left onto the correct logging features or components on the right.

Select and Place:

Correct Answer:

Answer Area

	stores log messages in RAM
	provides local access to a device
	stores log messages externally
	accepts incoming connections over vty lines
	displays logging information during a terminal session

Section: (none)
Explanation

Explanation/Reference:

QUESTION 210
Given the output for this command, if the router ID has not been manually set, what router ID will OSPF use for this router?

```
RouterD# show ip interface brief
Interface          IP-Address     OK?   Method   Status   Protocol
FastEthernet0/0    192.168.5.3    YES   manual   up       up
FastEthernet0/1    10.1.1.2       YES   manual   up       up
Loopback0          172.16.5.1     YES   NVRAM    up       up
Loopback1          10.154.154.1   YES   NVRAM    up       up
```

A. 10.1.1.2
B. 10.154.154.1
C. 172.16.5.1
D. 192.168.5.3

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The highest IP address of all loopback interfaces will be chosen -> Loopback 0 will be chosen as the router ID.

QUESTION 211

Which parameter or parameters are used to calculate OSPF cost in Cisco routers?

A. Bandwidth
B. Bandwidth and Delay
C. Bandwidth, Delay, and MTU
D. Bandwidth, MTU, Reliability, Delay, and Load

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The well-known formula to calculate OSPF cost is Cost = 108 / Bandwidth

QUESTION 212
Why do large OSPF networks use a hierarchical design? (Choose three.)

A. to decrease latency by increasing bandwidth
B. to reduce routing overhead
C. to speed up convergence
D. to confine network instability to single areas of the network
E. to reduce the complexity of router configuration
F. to lower costs by replacing routers with distribution layer switches

Correct Answer: BCD
Section: (none)
Explanation

Explanation/Reference:
Explanation:
OSPF implements a two-tier hierarchical routing model that uses a core or backbone tier known as area zero (0). Attached to that backbone via area border routers (ABRs) are a number of secondary tier areas. The hierarchical approach is used to achieve the following:
- Rapid convergence because of link and/or switch failures
- Deterministic traffic recovery
- Scalable and manageable routing hierarchy, reduced routing overhead.

QUESTION 213
Refer to the exhibit. When running OSPF, what would cause router A not to form an adjacency with router B?

A. The loopback addresses are on different subnets.

B. The values of the dead timers on the routers are different.
C. Route summarization is enabled on both routers.
D. The process identifier on router A is different than the process identifier on router B.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
To form an adjacency (become neighbor), router A & B must have the same Hello interval, Dead interval and AREA numbers

QUESTION 214
A router has learned three possible routes that could be used to reach a destination network. One route is from EIGRP and has a composite metric of 20514560. Another route is from OSPF with a metric of 782. The last is from RIPv2 and has a metric of 4. Which route or routes will the router install in the routing table?

A. the OSPF route
B. the EIGRP route
C. the RIPv2 route
D. all three routes
E. the OSPF and RIPv2 routes

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
When one route is advertised by more than one routing protocol, the router will choose to use the routing protocol which has lowest Administrative Distance. The Administrative Distances of popular routing protocols are listed below:

Route Source	Administrative Distance
Directly Connected	0
Static	1
EIGRP	90
EIGRP Summary route	5
OSPF	110
RIP	120

QUESTION 215
Which command is used to display the collection of OSPF link states?

A. show ip ospf link-state
B. show ip ospf lsa database
C. show ip ospf neighbors
D. show ip ospf database

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The "show ip ospf database" command displays the link states. Here is an example:
Here is the lsa database on R2.

```
R2#show ip osof database
OSPF Router with ID (2.2.2.2) (Process ID 1)
Router Link States (Area 0)
Link ID ADV Router Age Seq# Checksum Link count
2.2.2.2 2.2.2.2 793 0x80000003 0x004F85 2
10.4.4.4 10.4.4.4 776 0x80000004 0x005643 1
111.111.111.111 111.111.111.111 755 0x80000005 0x0059CA 2
133.133.133.133 133.133.133.133 775 0x80000005 0x00B5B1 2
Net Link States (Area 0)
Link ID ADV Router Age Seq# Checksum
10.1.1.1 111.111.111.111 794 0x80000001 0x001E8B
10.2.2.3 133.133.133.133 812 0x80000001 0x004BA9
10.4.4.1 111.111.111.111 755 0x80000001 0x007F16
10.4.4.3 133.133.133.133 775 0x80000001 0x00C31F
```

QUESTION 216
Refer to the exhibit. A network associate has configured OSPF with the command:

City(config-router)# network 192.168.12.64 0.0.0.63 area 0

After completing the configuration, the associate discovers that not all the interfaces are participating in OSPF. Which three of the interfaces shown in the exhibit will participate in OSPF according to this configuration statement? (Choose three.)

```
City#show ip interface brief

Interface          IP-Address      OK?  Method  Status  Protocol
FastEthernet0/0    192.168.12.48   YES  manual  up      up
FastEthernet0/1    192.168.12.65   YES  manual  up      up
Serial0/0          192.168.12.121  YES  manual  up      up
Serial0/1          unassigned      YES  unset   up      up
Serial0/1 102      192.168.12.1 25 YES  manual  up      up
Serial0/1 .103     192.168.12.1 29 YES  manual  up      up
Serial0/1 .104     192.168.12.133  YES  manual  up      up
City#
```

A. FastEthernet0 /0
B. FastEthernet0 /1
C. Serial0/0
D. Serial0/1.102
E. Serial0/1.103
F. Serial0/1.104

Correct Answer: BCD
Section: (none)
Explanation

Explanation/Reference:

Explanation:
The "network 192.168.12.64 0.0.0.63 equals to network 192.168.12.64/26. This network has:
+ Increment: 64 (/26= 1111 1111.1111 1111.1111 1111.1100 0000) + Network address: 192.168.12.64
+ Broadcast address: 192.168.12.127
Therefore all interface in the range of this network will join OSPF.

QUESTION 217
Which two statements describe the process identifier that is used in the command to configure OSPF on a router? (Choose two.)
Router(config)# router ospf 1

A. All OSPF routers in an area must have the same process ID.
B. Only one process number can be used on the same router.
C. Different process identifiers can be used to run multiple OSPF processes.
D. The process number can be any number from 1 to 65,535.
E. Hello packets are sent to each neighbor to determine the processor identifier.

Correct Answer: CD
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Multiple OSPF processes can be configured on a router using multiple process ID's. The valid process ID's are shown below:
Edge-B(config)#router ospf ?
<1-65535> Process ID

QUESTION 218
Which commands are required to properly configure a router to run OSPF and to add network 192.168.16.0/24 to OSPF area 0? (Choose two.)

A. Router(config)# router ospf 0
B. Router(config)# router ospf 1
C. Router(config)# router ospf area 0
D. Router(config-router)# network 192.168.16.0 0.0.0.255 0
E. Router(config-router)# network 192.168.16.0 0.0.0.255 area 0
F. Router(config-router)# network 192.168.16.0 255.255.255.0 area 0

Correct Answer: BE
Section: (none)
Explanation

Explanation/Reference:
Explanation:
In the router ospf
command, the ranges from 1 to 65535 so o is an invalid number -> but To configure OSPF, we need a wildcard in the "network" statement, not a subnet mask. We also need to assign an area to this process -> .

QUESTION 219
What is the default maximum number of equal-cost paths that can be placed into the routing table of a Cisco OSPF router?

A. 2

B. 8
C. 16
D. unlimited

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
maximum-paths (OSPF)
To control the maximum number of parallel routes that Open Shortest Path First (OSPF) can support, use the maximum-paths command.
Syntax Description

maximum	Maximum number of parallel routes that OSPF can install in a routing table. The range is from 1 to 16 routes.

Command Default
8 paths

QUESTION 220
A network administrator is troubleshooting the OSPF configuration of routers R1 and R2. The routers cannot establish an adjacency relationship on their common Ethernet link.

```
R1:   Ethernet0 is up, line protocol is up
        Internet address 192.168.1.2/24, Area 0
        Process ID 1, Router ID 192.168.31.33, Network Type BROADCAST, Cost: 10
        Transmit Delay is 1 sec, State DR, Priority 1
        Designated Router (ID) 192.168.31.33, Interface address 192.168.1.2
        No backup designated router on this network
        Timer intervals configured, Hello 5, Dead 20, Wait 20, Retransmit 5
R2:   Ethernet0 is up, line protocol is up
        Internet address 192.168.1.1/24, Area 0
        Process ID 2, Router ID 192.168.31.11, Network Type BROADCAST, Cost: 10
        Transmit Delay is 1 sec, State DR, Priority 1
        Designated Router (ID) 192.168.31.11, Interface address 192.168.1.1
        No backup designated router on this network
        Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
```

The graphic shows the output of the show ip ospf interface e0 command for routers R1 and R2. Based on the information in the graphic, what is the cause of this problem?

A. The OSPF area is not configured properly.
B. The priority on R1 should be set higher.
C. The cost on R1 should be set higher.
D. The hello and dead timers are not configured properly.
E. A backup designated router needs to be added to the network.
F. The OSPF process ID numbers must match.

Correct Answer: D
Section: (none)

Explanation

Explanation/Reference:
Explanation:
In OSPF, the hello and dead intervals must match and here we can see the hello interval is set to 5 on R1 and 10 on R2. The dead interval is also set to 20 on R1 but it is 40 on R2.

QUESTION 221
OSPF routing uses the concept of areas. What are the characteristics of OSPF areas? (Choose Three.)

A. Each OSPF area requires a loopback interface to be configured.
B. Areas may be assigned any number from 0 to 65535.
C. Area 0 is called the backbone area.
D. Hierarchical OSPF networks do not require multiple areas.
E. Multiple OSPF areas must connect to area 0.
F. Single area OSPF networks must be configured in area 1.

Correct Answer: BCE
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Definition of OSPF areas: An OSPF network may be structured, or subdivided, into routing areas to simplify administration and optimize traffic and resource utilization. Areas are identified by 32- bit numbers, expressed either simply in decimal, or often in octet-based dot-decimal notation, familiar from IPv4 address notation.
See discussion following Cisco Learning discussion.
https://learningnetwork.cisco.com/message/90832

QUESTION 222
Refer to the exhibit. Assume that all router interfaces are operational and correctly configured. In addition, assume that OSPF has been correctly configured on router R2. How will the default route configured on R1 affect the operation of R2?

A. Any packet destined for a network that is not directly connected to router R2 will be dropped immediately.
B. Any packet destined for a network that is not referenced in the routing table of router R2 will be directed to R1.
R1 will then send that packet back to R2 and a routing loop will occur.
C. Any packet destined for a network that is not directly connected to router R1 will be dropped.
D. The networks directly connected to router R2 will not be able to communicate with the 172.16.100.0, 172.16.100.128, and 172.16.100.64 subnetworks.
E. Any packet destined for a network that is not directly connected to router R2 will be dropped immediately because of the lack of a gateway on R1.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
First, notice that the more-specific routes will always be favored over less-specific routes regardless of the administrative distance set for a protocol. In this case, because we use OSPF for three networks (172.16.100.0 0.0.0.3, 172.16.100.64 0.0.0.63, 172.16.100.128 0.0.0.31) so the packets destined for these networks will not be affected by the default route. The default route configured on R1 "ip route 0.0.0.0 0.0.0.0 serial0/0 will send any packet whose destination network is not referenced in the routing table of router R1 to R2, it doesn't drop anything. These routes are declared in R1 and the question says that "OSPF has been correctly configured on router R2, so network directly connected to router R2 can communicate with those three subnetworks.
As said above, the default route configured on R1 will send any packet destined for a network that is not referenced in its routing table to R2; R2 in turn sends it to R1 because it is the only way and a routing loop will occur.

QUESTION 223
Refer to the exhibit. Which two statements are true about the loopback address that is configured on RouterB? (Choose two.)

A. It ensures that data will be forwarded by RouterB.
B. It provides stability for the OSPF process on RouterB.
C. It specifies that the router ID for RouterB should be 10.0.0.1.
D. It decreases the metric for routes that are advertised from RouterB.

E. It indicates that RouterB should be elected the DR for the LAN.

Correct Answer: BC
Section: (none)
Explanation

Explanation/Reference:
Explanation:
A loopback interface never comes down even if the link is broken so it provides stability for the OSPF process (for example we use that loopback interface as the router-id) - The router-ID is chosen in the order below:
+ The highest IP address assigned to a loopback (logical) interface. + If a loopback interface is not defined, the highest IP address of all active router's physical interfaces will be chosen. -> The loopback interface will be chosen as the router ID of RouterB -

QUESTION 224
Which characteristics are representative of a link-state routing protocol? (Choose three.)

A. provides common view of entire topology
B. exchanges routing tables with neighbors
C. calculates shortest path
D. utilizes event-triggered updates
E. utilizes frequent periodic updates

Correct Answer: ACD
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Each of routers running link-state routing protocol learns paths to all the destinations in its "area" so we can say although it is a bit unclear.
Link-state routing protocols generate routing updates only (not the whole routing table) when a change occurs in the network topology so
Link-state routing protocol like OSPF uses Dijkstra algorithm to calculate the shortest path -> . Unlike Distance vector routing protocol (which utilizes frequent periodic updates), link-state routing protocol utilizes event-triggered updates (only sends update when a change occurs) ->

QUESTION 225
Refer to the exhibit. The network is converged.After link-state advertisements are received from Router_A, what information will Router_E contain in its routing table for the subnets 208.149.23.64 and 208.149.23.96?

A. 208.149.23.64[110/13] via 190.173.23.10, 00:00:07, FastEthemet0/0 208.149.23.96[110/13] via 190.173.23.10, 00:00:16, FastEthemet0/0
B. 208.149.23.64[110/1] via 190.172.23.10, 00:00:07, Serial1/0 208.149.23.96[110/3] via 190.173.23.10, 00:00:16, FastEthemet0/0
C. 208.149.23.64[110/13] via 190.173.23.10, 00:00:07, Serial1/0 208.149.23.96[110/13] via 190.173.23.10, 00:00:16, Serial1/0 208.149.23.96[110/13] via 190.173.23.10, 00:00:16, FastEthemet0/0
D. 208.149.23.64[110/3] via 190.172.23.10, 00:00:07, Serial1/0 208.149.23.96[110/3] via 190.173.23.10, 00:00:16, Serial1/0

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Router_E learns two subnets subnets 208.149.23.64 and 208.149.23.96 via Router_A through FastEthernet interface. The interface cost is calculated with the formula 108 / Bandwidth. For FastEthernet it is 108 / 100 Mbps = 108 / 100,000,000 = 1. Therefore, the cost is 12 (learned from Router_A) + 1 = 13 for both subnets -> The cost through T1 link is much higher than through T3 link (T1 cost = 108 / 1.544 Mbps = 64; T3 cost = 108 / 45 Mbps = 2) so surely OSPF will choose the path through T3 link -> Router_E will choose the path from Router_A through FastEthernet0/0, not Serial1/0. In fact, we can quickly eliminate answers B, C and D because they contain at least one subnet learned from Serial1/0 -> they are surely incorrect.

QUESTION 226
Which router command can be used to determine the status of Serial 0/0?

A. show ip route
B. show interfaces
C. show s0/0 status
D. debug s0/0
E. show run
F. show version

Correct Answer: B
Section: (none)

Explanation

Explanation/Reference:

QUESTION 227
To what type of port would a cable with a DB-60 connector attach?

A. Serial port
B. Console port
C. Ethernet port
D. Fibre optic port

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 228
A network administrator is connecting PC hosts A and B directly through their Ethernet interfaces as shown in the graphic. Ping attempts between the hosts are unsuccessful. What can be done to provide connectivity between the hosts? (Choose two.)

A. A crossover cable should be used in place of the straight-through cable.
B. A rollover cable should be used in place of the straight-through cable.
C. The subnet masks should be set to 255.255.255.192
D. A default gateway needs to be set on each host.
E. The hosts must be reconfigured to use private IP addresses for direct connections of this type.
F. The subnet masks should be set to 255.255.255.0

Correct Answer: AF
Section: (none)
Explanation

Explanation/Reference:

QUESTION 229
Refer to the exhibit. What kind of cable should be used to make each connection that is identified by the numbers shown?

A. 1 - Ethernet Crossover cable
   2 - Ethernet straight-through cable
   3 - Fiber Optic cable
   4 - Rollover cable
B. 1 - Ethernet straight-through cable
   2 - Ethernet straight-through cable
   3 - Serial cable
   4 - Rollover cable
C. 1 - Ethernet rollover cable
   2 - Ethernet crossover cable
   3 - Serial cable
   4 - Null-modem cable
D. 1 - Ethernet straight-through cable
   2 - Ethernet Crossover cable
   3 - Serial cable
   4 - Rollover cable
E. 1 - Ethernet straight-through cable
   2 - Ethernet Crossover cable
   3 - Serial cable
   4 - Ethernet Straight-through cable

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 230
Which of the following are types of flow control? (Choose three.)

A. buffering
B. cut-through
C. windowing
D. congestion avoidance
E. load balancing

Correct Answer: ACD
Section: (none)
Explanation

Explanation/Reference:
Explanation:
http://www.info-it.net/cisco/ccna/exam-tips/flow-control.php

During Transfer of data, a high speed computer is generating data traffic a lot faster than the network device can handle in transferring to destination, so single gateway or destination device cannot handle much amount of traffic that is called "Congestion".
Buffering
The Technie is used to control the data transfer when we have congestion, when a network device receive a data it stores in memory section and then transfer to next destination this process called "Buffering".
Windowing Whereas Windowing is used for flow control by the Transport layer. Say the sender device is sending segments and the receiver device can accommodate only a fixed number of segments before it can accept more, the two devices negotiate the window size during the connection setup.
This is done so that the sending device doesn't overflow the receiving device's buffer. Also the receiving device can send a single acknowledgement for the segments it has received instead of sending an acknowledgement after every segment received. Also, this window size is dynamic meaning, the devices can negotiate and change the window size in the middle of a session. So if initially the window size is three and the receiving device thinks that it can accept more number of segments in its buffer it can negotiate with the sending device and it increase it to say 5 for example. Windowing is used only by TCP since UDP doesn't use or allow flow control.

QUESTION 231
How many simultaneous Telnet sessions does a Cisco router support by default?

A. 1
B. 2
C. 3
D. 4
E. 5
F. 6

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:

QUESTION 232
What is the purpose of flow control?

A. To ensure data is retransmitted if an acknowledgement is not received.
B. To reassemble segments in the correct order at the destination device.
C. To provide a means for the receiver to govern the amount of data sent by the sender.
D. To regulate the size of each segment.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
http://whatis.techtarget.com/definition/flow-control

Flow control is the management of data flow between computers or devices or between nodes in a network so that the data can be handled at an efficient pace. Too much data arriving before a device can handle it causes

data overflow, meaning the data is either lost or must be retransmitted. For serial data transmission locally or in a network, the Xon/Xoff protocol can be used. For modem connections, either Xon/Xoff or CTS/RTS (Clear to Send/Ready to Send) commands can be used to control data flow. In a network, flow control can also be applied by refusing additional device connections until the flow of traffic has subsided.

QUESTION 233
Refer to the exhibit. How many collision domains are shown?

A. one
B. two
C. three
D. four
E. six
F. twelve

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Hubs create single collision and broadcast domains.

QUESTION 234
Which IP address is a private address?

A. 12.0.0.1
B. 168.172.19.39
C. 172.20.14.36
D. 172.33.194.30
E. 192.169.42.34

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:

Private IP Address Ranges (RFC 1918)

Class	From	To	CIDR Mask	Decimal Mask
Class A (24 Bit)	10.0.0.0	10.255.255.255	/8	255.0.0.0
Class B (20 Bit)	172.16.0.0	172.31.255.255	/12	255.240.0.0
Class C (16 Bit)	192.168.0.0	192.168.255.255	/16	255.255.0.0

QUESTION 235
If an Ethernet port on a router was assigned an IP address of 172.16.112.1/20, what is the maximum number of hosts allowed on this subnet?

A. 1024
B. 2046
C. 4094
D. 4096
E. 8190

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Each octet represents eight bits. The bits, in turn, represent (from left to right): 128, 64, 32, 16 , 8, 4, 2, 1
Add them up and you get 255. Add one for the all zeros option, and the total is 256. Now take away one of these for the network address (all zeros) and another for the broadcast address (all ones). Each octet represents 254 possible hosts. Or 254 possible networks. Unless you have subnet zero set on your network gear, in which case you could conceivably have 255. The CIDR addressing format (/20) tells us that 20 bits are used for the network portion, so the maximum number of networks are 2^20 minus one if you have subnet zero enabled, or minus 2 if not.
You asked about the number of hosts. That will be 32 minus the number of network bits, minus two. So calculate it as (2^(32-20))-2, or (2^12)-2 = 4094

QUESTION 236
Which statements are TRUE regarding Internet Protocol version 6 (IPv6) addresses? (Choose three.)

A. An IPv6 address is divided into eight 16-bit groups.
B. A double colon (::) can only be used once in a single IPv6 address.
C. IPv6 addresses are 196 bits in length.
D. Leading zeros cannot be omitted in an IPv6 address.
E. Groups with a value of 0 can be represented with a single 0 in IPv6 address.

Correct Answer: ABE
Section: (none)
Explanation

Explanation/Reference:
Explanation:
IPv6 addresses are divided into eight 16-bit groups, a double colon (::) can only be used once in an IPv6 address, and groups with a value of 0 can be represented with a single 0 in an IPv6 address.

The following statements are also true regarding IPv6 address:
IPv6 addresses are 128 bits in length.
Eight 16-bit groups are divided by a colon (:).
Multiple groups of 16-bit 0s can be represented with double colon (::).
Double colons (::) represent only 0s.
Leading zeros can be omitted in an IPv6 address.
The option stating that IPv6 addresses are 196 bits in length is incorrect. IPv6 addresses are 128 bits in length.
The option stating that leading zeros cannot be omitted in an IPv6 address is incorrect.
Leading zeros can be omitted in an IPv6 address.

QUESTION 237
Which of the following IP addresses are valid Class B host addresses if a default Class B mask is in use? (Choose two.)

A. 10.6.8.35
B. 133.6.5.4
C. 192.168.5.9
D. 127.0.0.1
E. 190.6.5.4

Correct Answer: BE
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The IP addresses 133.6.5.4 and 190.6.5.4 are both valid Class B addresses when a default mask is in use. The Class B default mask is 255.255.0.0 and the range of valid addresses is 128.0.0.0- 191.255.255.255. The IP address 10.6.8.35 is a Class A address. The Class A default mask is 255.0.0.0 and the range of valid addresses is 1.0.0.0 - 127.255.255.255, with the exception of the range 127.0.0.1 - 127.255.255.255, which is reserved and cannot be assigned. The IP address 192.168.5.9 is a Class C address. The Class C default mask is 255.255.255.0 and the range of valid addresses is 192.0.0.0 - 223.255.255.255. The IP address 127.0.0.1 is a Class A address, but it comes from a reserved portion that cannot be assigned.
The range 127.0.0.1 - 127.255.255.255 is used for diagnostics, and although any address in the range will work as a diagnostic address, 127.0.0.1 is known as the loopback address. If you can ping this address, or any address in the 127.0.0.1 - 127.255.255.255 range, then the NIC is working and TCP/IP is installed. The Class A default mask is 255.0.0.0 and the range of valid addresses is 1.0.0.0 - 127.255.255.255, with the exception of the range 127.0.0.1 - 127.255.255.255, which is reserved and cannot be assigned.

Class	Address Range	Supports
Class A	1.0.0.1 to 126.255.255.254	Supports 16 million hosts on each of 127 networks.
Class B	128.1.0.1 to 191.255.255.254	Supports 65,000 hosts on each of 16,000 networks.
Class C	192.0.1.1 to 223.255.254.254	Supports 254 hosts on each of 2 million networks.
Class D	224.0.0.0 to 239.255.255.255	Reserved for multicast groups.
Class E	240.0.0.0 to 254.255.255.254	Reserved for future use, or Research and Development Purposes.

QUESTION 238
How many addresses will be available for dynamic NAT translation when a router is configured with the following commands?

```
Router(config)#ip nat pool TAME 209.165.201.23 209.165.201.30 netmask
255.255.255.224
```

```
Router(config)#ip nat inside source list 9 pool TAME
```

A. 7
B. 8
C. 9
D. 10
E. 24
F. 32

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
209.165.201.23 to 209.165.201.30 provides for 8 addresses.

QUESTION 239
Some routers have been configured with default routes. What are some of the advantages of using default routes? (Choose two)

A. They establish routes that will never go down.
B. They keep routing tables small.
C. They require a great deal of CPU power.
D. They allow connectivity to remote networks that are not in the routing table.
E. They direct traffic from the internet into corporate networks.

Correct Answer: BD
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Cisco administration 101: What you need to know about default routes http://www.techrepublic.com/article/cisco-administration-101-what-you-need-to-know-about- default-routes/

QUESTION 240
Refer to the exhibit. PC1 pings PC2. What three things will CORE router do with the data that is received from PC1? (Choose three.)

```
CORE# show arp
Protocol  Address          Age (min)  Hardware Addr   Type   Interface
Internet  172.16.12.1            -    0001.4210.3BA9  ARPA   FastEthernet0/0
Internet  172.16.12.2            0    0010.111A.7AB0  ARPA   FastEthernet0/0
Internet  172.16.40.1            -    00D0.FF59.4A85  ARPA   FastEthernet1/0
Internet  172.16.40.2            0    00E0.B0B7.EAB1  ARPA   FastEthernet1/0
CORE#
```

A. The data frames will be forwarded out interface FastEthernet0/1 of CORE router.
B. The data frames will be forwarded out interface FastEthernet1/0 of CORE router.
C. CORE router will replace the destination IP address of the packets with the IP address of PC2.
D. CORE router will replace the MAC address of PC2 in the destination MAC address of the frames.
E. CORE router will put the IP address of the forwarding FastEthernet interface in the place of the source IP address in the packets.
F. CORE router will put the MAC address of the forwarding FastEthernet interface in the place of the source MAC address.

Correct Answer: BDF
Section: (none)
Explanation

Explanation/Reference:

QUESTION 241
Which three statements are correct about RIP version 2? (Choose three.)

A. It uses broadcast for its routing updates.
B. It supports authentication.
C. It is a classless routing protocol.
D. It has a lower default administrative distance then RIP version 1.
E. It has the same maximum hop count as RIP version 1.
F. It does not send the subnet mask any updates.

Correct Answer: BCE
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 242
Refer to the exhibit.

Neighbor_ID	Pri	State	Dead Time	Address	Interface
AAA.AAA.AA.AAA	1	Full/DR	00:00:33	190.172.32.10	Ethernet1
AAA.AAA.AA.BB	1	Full/BDR	00:00:33	190.172.32.10	Ethernet0
AAA.AAA.AA.CCC	1	Full/DR	00:00:39	190.172.32.10	Ethernet0

Why are two OSPF designated routers identified on Core-Router?

A. Core-Router is connected to more than one multi-access network.
B. The router at 208.149.23.130 is a secondary DR in case the primary fails.
C. Two router IDs have the same OSPF priority and are therefore tied for DR election
D. The DR election is still underway and there are two contenders for the role.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
OSPF elects one DR per multi-access network. In the exhibit there are two DR so there must have more than one multi-access network.

QUESTION 243
What is the OSPF default frequency, in seconds, at which a Cisco router sends hello packets on a multi-access network?

A. 10
B. 40
C. 30
D. 20

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
On broadcast multi-access and point-to-point links, the default is 10 seconds. On NBMA, the default is 30 seconds.

QUESTION 244
What does the "Inside Global" address represent in the configuration of NAT?

A. the summarized address for all of the internal subnetted addresses
B. the MAC address of the router used by inside hosts to connect to the Internet
C. a globally unique, private IP address assigned to a host on the inside network
D. a registered address that represents an inside host to an outside network

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:

NAT: Local and Global Definitions
http://www.cisco.com/en/US/tech/tk648/tk361/technologies_tech_note09186a0080094837.shtml

Cisco defines these terms as:

Inside local address - The IP address assigned to a host on the inside network. This is the address configured as a parameter of the computer OS or received via dynamic address allocation protocols such as DHCP. The address is likely not a legitimate IP address assigned by the Network Information Center (NIC) or service provider. Inside global address - A legitimate IP address assigned by the NIC or service provider that represents one or more inside local IP addresses to the outside world.

Outside local address - The IP address of an outside host as it appears to the inside network. Not necessarily a legitimate address, it is allocated from an address space routable on the inside.

Outside global address - The IP address assigned to a host on the outside network by the host owner. The address is allocated from a globally routable address or network space. These definitions still leave a lot to be interpreted. For this example, this document redefines these terms by first defining local address and global address. Keep in mind that the terms inside and outside are NAT definitions. Interfaces on a NAT router are defined as inside or outside with the NAT configuration commands, ip nat inside destination and ip nat outside source. Networks to which these interfaces connect can then be thought of as inside networks or outside networks, respectively.

Local address--A local address is any address that appears on the inside portion of the network.

Global address - A global address is any address that appears on the outside portion of the network.

QUESTION 245
Refer to the exhibit.

A company wants to use NAT in the network shown. Which commands will apply the NAT configuration to the proper interfaces? (Choose two.)

A. R1(config)# interface serial0/1
   R1(config-if)# ip nat inside
B. R1(config)# interface serial0/1
   R1(config-if)# ip nat outside
C. R1(config)# interface fastethernet0/0
   R1(config-if)# ip nat inside
D. R1(config)# interface fastethernet0/0
   R1(config-if)# ip nat outside
E. R1(config)# interface serial0/1
   R1(config-if)# ip nat outside source pool 200.2.2.18 255.255.255.252
F. R1(config)# interface fastethernet0/0
   R1(config-if)# ip nat inside source 10.10.0.0 255.255.255.0

Correct Answer: BC
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 246
Which of the following statements are TRUE regarding Cisco access lists? (Choose two.)

A. In an inbound access list, packets are filtered as they enter an interface.
B. In an inbound access list, packets are filtered before they exit an interface.
C. Extended access lists are used to filter protocol-specific packets.
D. You must specify a deny statement at the end of each access list to filter unwanted traffic.
E. When a line is added to an existing access list, it is inserted at the beginning of the access list.

Correct Answer: AC
Section: (none)
Explanation

Explanation/Reference:
Explanation:
In an inbound access list, packets are filtered as they enter an interface. Extended access lists are used to filter protocol specific packets. Access lists can be used in a variety of situations when the router needs to be given guidelines for decision-making. These situations include:
Filtering traffic as it passes through the router
To control access to the VTY lines (Telnet)
To identify "interesting" traffic to invoke Demand Dial Routing (DDR) calls
To filter and control routing updates from one router to another
There are two types of access lists, standard and extended.
Standard access lists are applied as close to the destination as possible (outbound), and can only base their filtering criteria on the source IP address. The number used while creating an access list specifies the type of access list created. The range used for standard access lists is 1 to 99 and 1300 to 1999. Extended access lists are applied as close to the source as possible (inbound), and can base their filtering criteria on the source or destination IP address, or on the specific protocol being used. The range used for extended access lists is 100 to 199 and 2000 to 2699.
Other features of access lists include:
Inbound access lists are processed before the packet is routed.
Outbound access lists are processed after the packet has been routed to an exit interface.
An "implicit deny" is at the bottom of every access list, which means that if a packet has not matched any preceding access list condition, it will be filtered (dropped). Access lists require at least one permit statement, or all packets will be filtered (dropped). One access list may be configured per direction for each Layer 3 protocol configured on an interface The option stating that in an inbound access list, packets are filtered before they exit an interface is incorrect. Packets are filtered as they exit an interface when using an outbound access list. The option stating that a deny statement must be specified at the end of each access list in order to filter unwanted traffic is incorrect. There is an implicit deny at the bottom of every access list. When a line is added to an existing access list, it is not inserted at the beginning of the access list. It is inserted at the end. This should be taken into consideration. For example, given the following access list, executing the command access-list 110 deny tcp 192.168.5.0 0.0.0.255 any eq www would have NO effect on the packets being filtered because it would be inserted at the end of the list, AFTER the line that allows all traffic.

access-list 110 permit ip host 192.168.5.1 any
access-list 110 deny icmp 192.168.5.0 0.0.0.255 any echo
access-list 110 permit any any

QUESTION 247
From which of the following attacks can Message Authentication Code (MAC) shield your network?

A. DoS
B. DDoS
C. spoofing
D. SYN floods

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Explanation:
Message Authentication Code (MAC) can shield your network from spoofing attacks. Spoofing, also known as masquerading, is a popular trick in which an attacker intercepts a network packet, replaces the source address of the packets header with the address of the authorized host, and reinserts fake information which is sent to the receiver. This type of attack involves modifying packet contents. MAC can prevent this type of attack and ensure data integrity by ensuring that no data has changed. MAC also protects against frequency analysis, sequence manipulation, and ciphertext-only attacks. MAC is a secure message digest that requires a secret key shared by the sender and receiver, making it impossible for sniffers to change both the data and the MAC as the receiver can detect the changes.
A denial-of-service (DoS) attack floods the target system with unwanted requests, causing the loss of service to users. One form of this attack generates a flood of packets requesting a TCP connection with the target, tying up all resources and making the target unable to service other requests. MAC does not prevent DoS attacks. Stateful packet filtering is the most common defense against a DoS attack.
A Distributed Denial of Service attack (DDoS) occurs when multiple systems are used to flood the network and tax the resources of the target system. Various intrusion detection systems, utilizing stateful packet filtering, can protect against DDoS attacks. In a SYN flood attack, the attacker floods the target with spoofed IP packets and causes it to either freeze or crash. A SYN flood attack is a type of denial of service attack that exploits the buffers of a device that accept incoming connections and therefore cannot be prevented by MAC. Common defenses against a SYN flood attack include filtering, reducing the SYN-RECEIVED timer, and implementing SYN cache or SYN cookies.

QUESTION 248
Refer to the exhibit.

After the power-on-self test (POST), the system LED of a Cisco 2950 switch turns amber. What is the status of the switch?

A. The POST was successful.
B. The switch has a problem with the internal power supply and needs an external power supply to be attached.
C. POST failed and there is a problem that prevents the operating system from being loaded.
D. The switch has experienced an internal problem but data can still be forwarded at a slower rate.
E. The switch passed POST, but all the switch ports are busy.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
http://www.cisco.com/en/US/products/hw/switches/ps607/products_tech_note09186a0080125913.shtml

Each time you power up the switch, eight Power-On Self Tests (POSTs) run automatically. POSTs check the most important system components before the switch begins to forward packets. When the switch begins the POST, the port status LEDs display amber for two seconds, and then display green. As each test runs, the port status LEDs go out. 1x is the first to go out. The port status LEDs for ports 2x through 8x go out sequentially as the system completes a test. When the POST completes successfully, the port status LEDs go out. This indicates that the switch is operational. If a test fails, the port status LED associated with the test displays amber.
The system LED also displays amber.

Not E. From Cisco IOS Software Release 11.2(8.5) SA6 onwards, the port and system LEDs both remain amber after a POST failure. In the earlier Cisco IOS Software Releases, only the LEDs of failed linked ports remained amber.

QUESTION 249
Refer to the exhibit.

A technician pastes the configurations in the exhibit into the two new routers shown.

Otherwise, the routers are configured with their default configurations.

A ping from Host1 to Host 2 fails, but the technician is able to ping the S0/0 interface of R2 from Host 1. The configurations of the hosts have been verified as correct. What could be the cause of the problem?

A. The serial cable on R1 needs to be replaced.
B. The interfaces on R2 are not configured properly
C. R1 has no route to the 192.168.1.128 network.
D. The IP addressing scheme has overlapping subnetworks.
E. The ip subnet-zero command must be configured on both routers.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Without a static route pointing to host 2 network the router is unaware of the path to take to reach that network and reply traffic cannot be sent.

QUESTION 250
Refer to the exhibit. Why did the device return this message?

```
WG1R2#show ru
% Ambiguous command:  "show ru"
WG1R2#_
```

A. The command requires additional options or parameters
B. There is no show command that starts with ru.
C. The command is being executed from the wrong router mode.
D. There is more than one show command that starts with the letters ru.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Answer D is correct because when you type the incomplete command having more same more command same up to types characters it shows display the ambiguous command error.

QUESTION 251
Refer to the exhibit. Serial 0/0 does not respond to a ping request from a host on the FastEthernet 0/0 LAN. How can this problem be corrected?

```
BHM# show ip interface brief
Interface              IP-Address    OK?   Method Status                Protocol
FastEthernet0/0        192.168.16.1  YES   NVRAM  up                    up
Serial0/0              192.168.15.2  YES   NVRAM  administratively down down
FastEthernet0/1        192.168.17.1  YES   NVRAM  up                    up
Serial0/1              unassigned    YES   NVRAM  administratively down down
```

A. Enable the Serial 0/0 interface.
B. Correct the IP address for Serial 0/0.
C. Correct the IP address for FastEthernet 0/0
D. Change the encapsulation type on Serial 0/0
E. Enable autoconfiguration on the Serial 0/0 interface

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation: Serial 0/0 interface is administratively down therefore, you will have to run the "no shutdown" command to enable the interface for data.

QUESTION 252
Refer to the exhibit. Why was this message received?

```
WG1R2#telnet 10.3.1.2
Trying 10.3.1.2 ... Open


Password required, but none set

[Connection to 10.3.1.2 closed by foreign host]
WG1R2#_
```

A. No VTY password has been set.
B. No enable password has been set.
C. No console password has been set.
D. No enable secret password has been set.
E. The login command has not been set on CON 0
F. The login command has not been set on the VTY ports.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 253
Refer to the exhibit. After configuring two interfaces on the HQ router, the network administrator notices an error message. What must be done to fix this error?

```
HQ# configure terminal
HQ(config)# interface fastethernet 0/0
HQ(config-if)# ip address 192.168.1.17 255.255.255.0
HQ(config-if)# no shutdown
HQ(config-if)# interface serial 0/0
HQ(config-if)# ip address 192.168.1.65 255.255.255.240
HQ(config-if)# no shutdown
% 192.168.1.0 overlaps with FastEthernet0/0
```

A. The serial interface must be configured first.
B. The serial interface must use the address 192.168.1.2
C. The subnet mask of the serial interface should be changed to 255.255.255.0
D. The subnet mask of the FastEthernet interface should be changed to 255.255.255.240
E. The address of the FastEthernet interface should be changed to 192.168.1.66

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 254
Two routers named Atlanta and Brevard are connected by their serial interfaces as shown in the exhibit, but there is no data connectivity between them. The Atlanta router is known to have a correct configuration.

Given the partial configurations shown in the exhibit, what is the problem on the Brevard router that is causing the lack of connectivity?

A. A loopback is not set.
B. The IP address is incorrect.
C. The subnet mask is incorrect.
D. The serial line encapsulations are incompatible.
E. The maximum transmission unit (MTU) size is too large.

F. The bandwidth setting is incompatible with the connected interface.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 255
What are two benefits of using a single OSPF area network design? (Choose two.)

A. It is less CPU intensive for routers in the single area.
B. It reduces the types of LSAs that are generated.
C. It removes the need for virtual links.
D. It increases LSA response times.
E. It reduces the number of required OSPF neighbor adjacencies.

Correct Answer: BC
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 256
What command sequence will configure a router to run OSPF and add network 10.1.1.0 /24 to area 0?

A. router ospf area 0
network 10.1.1.0 255.255.255.0 area 0
B. router ospf
network 10.1.1.0 0.0.0.255
C. router ospf 1
network 10.1.1.0 0.0.0.255 area 0
D. router ospf area 0
network 10.1.1.0 0.0.0.255 area 0
E. router ospf
network 10.1.1.0 255.255.255.0 area 0
F. router ospf 1
network 10.1.1.0 0.0.0.255

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 257
Refer to the exhibit. If the router Cisco returns the given output and has not had its router ID set manually, what value will OSPF use as its router ID?

```
Cisco#show ip interface brief
Interface              IP-Address      OK? Method Status                Protocol

FastEthernet0/0        192.168.1.1     YES manual up                    up

FastEthernet0/1        172.16.1.1      YES manual up                    up

Loopback0              1.1.1.1         YES manual up                    up

Loopback1              2.2.2.2         YES manual up                    up

Vlan1                  unassigned      YES unset  administratively down down
```

A. 192.168.1.1
B. 172.16.1.1
C. 1.1.1.1
D. 2.2.2.2

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 258
What OSPF command, when configured, will include all interfaces into area 0?

A. network 0.0.0.0 255.255.255.255 area 0
B. network 0.0.0.0 0.0.0.0 area 0
C. network 255.255.255.255 0.0.0.0 area 0
D. network all-interfaces area 0

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 259
Which statement describes the process ID that is used to run OSPF on a router?

A. It is globally significant and is used to represent the AS number.
B. It is locally significant and is used to identify an instance of the OSPF database.
C. It is globally significant and is used to identify OSPF stub areas.
D. It is locally significant and must be the same throughout an area.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 260
After the show ip route command has been entered, the following routes are displayed. Which route will not be entered into the routing table of a neighboring router?

A. R 192.168.8.0/24 [120/1] via 192.168.2.2, 00:00:10, Serial0
B. R 192.168.11.0/24 [120/7] via 192.168.9.1, 00:00:03, Serial1
C. C 192.168.1.0/24 is directly connected, Ethernet0
D. R 192.168.5.0/24 [120/15] via 192.168.2.2, 00:00:10, Serial0

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The route 192.168.5.0/24 currently has the metric of 15 so this router will add 1 hop count before sending out to its neighboring router. With RIP, a metric of 16 means that network is down -> it will not be installed in the routing table of the neighboring router.

QUESTION 261
Refer to Exhibit. Based on the network shown in the graphic which option contains both the potential networking problem and the protocol or setting that should be used to prevent the problem?

A. routing loops, hold down timers
B. switching loops, split horizon
C. routing loops, split horizon
D. switching loops, VTP
E. routing loops, STP
F. switching loops, STP

Correct Answer: F
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 262
If all OSPF routers in a single area are configured with the same priority value, what value does a router use

for the OSPF router ID in the absence of a loopback interface?

A. the IP address of the first Fast Ethernet interface
B. the IP address of the console management interface
C. the highest IP address among its active interfaces
D. the lowest IP address among its active interfaces
E. the priority value until a loopback interface is configured

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 263
The OSPF Hello protocol performs which of the following tasks? (Choose two.)

A. It provides dynamic neighbor discovery.
B. It detects unreachable neighbors in 90 second intervals.
C. It maintains neighbor relationships.
D. It negotiates correctness parameters between neighboring interfaces.
E. It uses timers to elect the router with the fastest links as the designated router.
F. It broadcasts hello packets throughout the internetwork to discover all routers that are running OSPF.

Correct Answer: AC
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 264
Which of the following is a characteristic of full-duplex communication?

A. It is a CSMA/CD network.
B. It is a CSMA/CA network.
C. It is point-to-point only.
D. Hub communication is done via full duplex.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 265
Which commands display information about the Cisco IOS software version currently running on a router? (Choose three.)

A. show running-config
B. show stacks

C. show version
D. show flash
E. show protocols
F. show IOS

Correct Answer: ACD
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 266
After the shutdown command has been issued on the serial 0/0 interface, what will be displayed when the show interface serial 0/0 command is issued by the administrator?

A. Serial0/0 is administratively down, line protocol is down
B. Serial0/0 is down, line protocol is down
C. Serial0/0 is up, line protocol is down
D. Serial0/0 is administratively down, line protocol is administratively down
E. Serial0/0 is up, line protocol is up
F. Serial0/0 is down, line protocol is up

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 267
Refer to the output of the three router commands shown in the exhibit. A new technician has been told to add a new LAN to the company router. Why has the technician received the error message that is shown following the last command?

```
Router# show version
Cisco Internetwork Operating System Software
IOS (tm) C2600 Software (C2600-DO3S-M), Version 12.1(5)T12,
RELEASE SOFTWARE (fc1)
TAC Support: http://www.cisco.com/tac
Copyright (c) 1986-2002 by cisco Systems, Inc.
Copyright (c) 1986-2002 by cisco Systems, Inc.
Image text-base: 0x80008088, data-base: 0x81169C28

ROM: System Bootstrap, Version 12.2(10r)1, RELEASE
SOFTWARE (fc1)

Router uptime is 10 minutes
System returned to ROM by power-on
System image file is "flash:c2600-do3s-mz.121-5.T12.bin"

cisco 2621 (MPC860) processor (revision 0x00) with
44032K/5120K bytes of memory

Processor board ID JAD06390AR4 (617842770)
M860 processor: part number 0, mask 49
Bridging software.
X.25 software, Version 3.0.0.
Basic Rate ISDN software, Version 1.1.
2 FastEthernet/IEEE 802.3 interface(s)
2 Low-speed serial(sync/async) network interface(s)
1 ISDN Basic Rate interface(s)
32K bytes of non-volatile configuration memory.
16384K bytes of processor board System flash (Read/Write)

Configuration register is 0x2102
```

```
Router# configure terminal
Enter configuration commands, one per line.
End with CNTL/Z.
Router(config)# interface e0
                ^
% Invalid input detected at '^' marker.
```

A. The interface was already configured.
B. The interface type does not exist on this router platform.
C. The IOS software loaded on the router is outdated.
D. The router does not support LAN interfaces that use Ethernet.
E. The command was entered from the wrong prompt.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
From the output of the "show version" command, we learn that there are only 2 FastEthernet interfaces (2 FastEthernet/IEEE 802.3 interfaces) and this router does not have any Ethernet interface so an error will occur when we enter the "interface e0" command.

QUESTION 268
The system LED is amber on a Cisco Catalyst 2950 series switch. What does this indicate?

A. The system is malfunctioning.
B. The system is not powered up.
C. The system is powered up and operational.
D. The system is forwarding traffic.
E. The system is sensing excessive collisions.

Correct Answer: A

Section: (none)
Explanation

Explanation/Reference:
Explanation:
The system LED shows whether the system is receiving power and functioning properly.

Color	System Status
Off	System is not powered up.
Green	System is operating normally.
Amber	System is receiving power but is not functioning properly.

Reference: https://www.cisco.com/en/US/docs/switches/lan/catalyst2900xl_3500xl/releasesa6/hig/2900xl/maoverv_external_docbase_0900e4b18042dc1c_4container_external_docbase_0900e4b18042ef55.html

QUESTION 269
Refer to the topology and partial configurations shown in the exhibit. The network administrator has finished configuring the NewYork and Sydney routers and issues the command ping Sydney from the NewYork router. The ping fails. What command or set of commands should the network administrator issue to correct this problem?

A. Sydney(config)# interface s0/0
   Sydney(config-if)# cdp enable
B. Sydney(config)# interface s0/0
   Sydney(config-if)# no shut
C. Sydney(config)# line vty 0 4
   Sydney(config)# login
   Sydney(config)# password Sydney
D. Sydney(config)# ip host Sydney 10.1.1.9

E. Sydney(config)# interface s0/0
Sydney(config-if)# ip address 10.1.1.5 255.255.255.252 NewYork(config)# ip host Sydney 10.1.1.5

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:
Explanation:

The IP addresses on the two Serial interfaces of two routers are not in the same subnet so they could not recognize each other and the ping failed. Therefore we must correct the IP address of one of the router so that they are in the same subnet.

QUESTION 270
Refer to the exhibit. Host B has just been added to the network and must acquire an IP address. Which two addresses are possible addresses that will allow host B to communicate with other devices in the network? (Choose two.)

A. 192.168.10.32
B. 192.168.10.38
C. 192.168.10.46
D. 192.168.10.47
E. 192.168.10.49
F. 192.168.10.51

Correct Answer: BC
Section: (none)
Explanation

Explanation/Reference:
Explanation:

The IP address of host B must be in the range of 192.168.10.32/28 subnet, which ranges from 192.168.10.32 to 192.168.10.47 (Increment: 16), except the IP addresses of 192.168.10.32, 192.168.10.46 (which are the network and broadcast addresses of the subnet), 192.168.10.33, 192.168.10.34 (which have been assigned to the interface's router and the switch). Therefore, there are only two IP addresses of 192.168.10.38 & 192.168.10.46.

QUESTION 271
Refer to the exhibit. HostB is sending a file to HostA. B represents the frame as it leaves the Oshawa router. What is the Layer 2 destination address of the frame at this point?

	IP Address	MAC Address
HostA	192.168.1.5	abcd.1123.0045
fa0/0 (Toronto)	192.168.1.1	abcd.2246.0035
fa0/1 (Toronto)	192.168.3.1	abcd.4444.0012
fa0/1 (Oshawa)	192.168.3.2	abcd.1234.5678
fa0/0 (Oshawa)	192.168.7.1	aabb.7777.3333
FTP Server	192.168.7.17	aabb.5555.2222

A. abcd.1123.0045
B. abcd.1234.5678
C. abcd.2246.0035
D. abcd.4444.0012
E. aabb.5555.2222

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 272
Refer to the exhibit. A network technician is unable to ping from R1 to R2. Using the output of the show interfaces serial0/1 command, what should the administrator do to correct the problem?

A. Replace the serial cable between R1 and R2.
B. Reseat the serial connectors on the R1 and R2 routers.
C. Configure the serial0/1 interface on R2 with the no shutdown command.
D. Configure the serial0/1 interface on R1 with the clock rate 56000 command.
E. Configure the serial0/1 interface on R1 with the ip address 192.1.1.7 255.255.255.252 command.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 273
Examine the network diagram and router output shown in the exhibit. Users on the BHM LAN are unable to access the server attached to the BHE router. What two things should be done to fix this problem? (Choose two.)

A. Enter the configuration mode for interface fastethernet0/0.
B. Enter the configuration mode for interface serial0/0.
C. Enter the configuration mode for interface serial0/1.
D. Issue the run command.
E. Issue the enable command.
F. Issue the no shutdown command.

Correct Answer: BF
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 274
From where does a small network get its IP network address?

A. Internet Assigned Numbers Authority (IANA)
B. Internet Architecture Board (IAB)
C. Internet Service Provider (ISP)
D. Internet Domain Name Registry (IDNR)

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 275
A network administrator has subnetted the 172.16.0.0 network using a subnet mask of 255.255.255.192. A duplicate IP address of 172.16.2.120 has accidentally been configured on a workstation in the network. The technician must assign this workstation a new IP address within that same subnetwork. Which address should be assigned to the workstation?

A. 172.16.1.80
B. 172.16.2.80
C. 172.16.1.64
D. 172.16.2.64
E. 172.16.2.127
F. 172.16.2.128

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 276
Refer to the exhibit. A network technician is unable to ping from R1 to R2.
What will help correct the problem?

```
R1#sh int ser0/1
Serial0/1 is up, line protocol is down
  Hardware is GT96K Serial
  Internet address is 192.1.1.1/30
  MTU 1500 bytes, BW 1544 Kbit/sec, DLY 20000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation HDLC, loopback not set
  Keepalive set (10 sec)
R2#sh int serial 0/1
Serial0/1 is up, line protocol is down
  Hardware is GT96K Serial
  Internet address is 192.1.1.2/30
  MTU 1500 bytes, BW 1544 Kbit/sec, DLY 20000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation HDLC, loopback not set
  Keepalive set (10 sec)
```

A. Ensure that the serial cable is correctly plugged in to the interfaces.
B. Apply the clock rate 56000 configuration command to the serial0/1 interface of R1.
C. Configure the serial0/1 interfaces on R1 and R2 with the no shutdown command.
D. Change the address of the serial0/1 interface of R1 to 192.1.1.4.
E. Change the subnet masks of both interfaces to 255.255.255.240.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 277
SW-C has just been added to the network shown in the graphic.

What is the purpose of assigning a default gateway to this switch?

A. allows connectivity to Router B from the switch prompt
B. allows console port connectivity to the switch from Host A
C. allows connectivity to remote network devices from Host B
D. allows the switch to pass traffic between Host A and Host B

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 278
What is the maximum number of bits that can be borrowed to create subnets if a Class B network address is being used?

A. 2
B. 6
C. 8
D. 14
E. 16

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 279
Which three network addresses are reserved for private network use? (Choose three.)

A. 10.0.0.0
B. 172.15.0.0
C. 172.31.0.0
D. 192.162.24.0
E. 192.168.255.0
F. 224.192.0.0

Correct Answer: ACE
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 280
Which form of NAT maps multiple private IP addresses to a single registered IP address by using different ports?

A. static NAT
B. dynamic NAT
C. overloading
D. overlapping
E. port loading

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 281
Refer to the exhibit. A network technician has added host A to the network. Host A cannot communicate on the network. A ping that is issued on the host to address 127.0.0.1 fails. What is the problem?

A. The router is not forwarding the ping packets to network 127.0.0.0.
B. The remote host at 127.0.0.1 is unreachable.
C. The default gateway is incorrect.
D. The IP address of host A is incorrect.
E. The TCP/IP protocols are not loaded.

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 282
Refer to the exhibit. Pierre has just installed the mail server and Switch2. For security reasons UDP packets are not permitted outbound on the Fa0/1 router interface. Pierre is now at his workstation testing the new installation and is not able to establish SMTP communication to the mail server.

What is the most likely cause for lack of communication between Pierre's workstation and the mail server?

A. The crossover cable should be a straight-through cable.
B. UDP is blocked coming out of the Fa0/1 interface on the router.
C. The server should be directly connected to the router.
D. The IP addresses are all on the same network. No router is required.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 283
Refer to the exhibits labeled A through E. All devices are to be connected over Ethernet. Which three device-to-device configurations are likely to require the use of a crossover connection? (Choose three.)

A. exhibit A
B. exhibit B
C. exhibit C
D. exhibit D
E. exhibit E

Correct Answer: ADE
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 284
Refer to the exhibit. Which two statements are true of the interface configuration? (Choose two.)

```
Router# show interface s0
Serial0 is up, line protocol is up
  Hardware is HD64570
  Internet address is 10.140.1.2/24
  MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec, rely 255/255, load 1/255
  Encapsulation PPP, loopback not set, keepalive set (10 sec)
  LCP Open
  Open: IPCP, CDPCP
  Last input 00:00:05, output 00:00:05, output hang never
  Last clearing of "show interface" counters never
  Queueing strategy: fifo
  Output queue 0/40, 0 drops; input queue 0/75, 0 drops
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     38021 packets input, 5656110 bytes, 0 no buffer
     Received 23488 broadcasts, 0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
     38097 packets output, 2135697 bytes, 0 underruns
     0 output errors, 0 collisions, 6045 interface resets
     0 output buffer failures, 0 output buffers swapped out
     482 carrier transitions
     DCD=up  DSR=up  DTR=up  RTS=up  CTS=up
```

A. The encapsulation in use on this interface is PPP.
B. The default serial line encapsulation is in use on this interface.
C. The address mask of this interface is 255.255.255.0.
D. This interface is connected to a LAN.
E. The interface is not ready to forward packets.

Correct Answer: AC
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 285
Refer to the exhibit. What value should be displayed in Box 1 of the ipconfig output of host A?

A. 172.18.14.5
B. 172.18.14.6
C. 192.168.1.10
D. 192.168.1.11
E. 192.168.1.250
F. 192.168.1.254

Correct Answer: F
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 286
The internetwork shown in the diagram is experiencing network connectivity problems. What is the cause of the problem?

A. The cabling connecting host A to Switch3 is too long.
B. The address of host B is a broadcast address.
C. The IP address of interface Fa0/0 of Router1 is not a usable address.
D. The cable connecting Switch2 and Switch3 should be a crossover.
E. The IP address of Server 1 is in the wrong subnet.

Correct Answer: D

Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 287
Refer to the exhibit. Which two of the output fields could help you determine if a broadcast storm has occurred? (Choose two.)

```
FastEthernet0/1 is up, line protocol is up (connected)
 ....
 (output omitted)
 ....
   114682 packets input, 8027398 bytes, 0 no buffer
   Received 45853 broadcasts (0 multicast)
   0 runts, 0 giants, 0 throttles
   0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
   0 watchdog, 45853 multicast, 0 pause input
   0 input packets with dribble condition detected
   493185 packets output, 36788789 bytes, 0 underruns
   0 output errors, 0 collisions, 1 interface resets
   0 babbles, 0 late collision, 0 deferred
   0 lost carrier, 0 no carrier, 0 PAUSE output
   0 output buffer failures, 0 output buffers swapped out
```

A. giants
B. no buffer
C. collisions
D. ignored
E. dribble condition

Correct Answer: BD
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 288
Refer to the exhibit. What does the address 192.168.2.167 represent?

Router# **copy startup-config tftp**
Address or name of remote host []? 192.168.2.167
Destination filename [router-config]?
!!!!!!!!
1476 bytes copied in 0.080. secs (5950 bytes/sec)

Router#

A. the TFTP server from which the file startup-config is being transferred
B. the router from which the file startup-config is being transferred
C. the TFTP server from which the file router-confg is being transferred
D. the TFTP server to which the file router-confg is being transferred
E. the router to which the file router-confg is being transferred
F. the router to which the file startup-config is being transferred

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 289
Refer to the exhibit. Two 2950 switches connect through ports fa0/24 using a straight-through cable. Based on the output that is shown in the exhibit and the information that is given, what can be concluded about this network?

A. STP can not be configured on a FastEthernet ports.
B. An IP address and default gateway must be configured on each switch.
C. The switches do not share the same VTP domain.
D. Port fa0/24 must be configured as a trunk in order for the switches to share neighbor information.
E. The switches are cabled incorrectly.

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 290
In which situation would the use of a static route be appropriate?

A. To configure a route to the first Layer 3 device on the network segment.
B. To configure a route from an ISP router into a corporate network.
C. To configure a route when the administrative distance of the current routing protocol is too low.
D. To reach a network is more than 15 hops away.
E. To provide access to the Internet for enterprise hosts.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 291
What happens when the cable is too long?

A. Baby Giant
B. Late collision

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 292
What is the requirement of configuring 6to4 tunnelling on two routers?

A. Both ipv6 and ipv4 must be configured
B. Only IPv6
C. Only IPv4

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 293
Which name describes an IPV6 host-enable tunneling technique that uses IPV4 UDP,does not require dedicated gateway tunnels, and can pass through existing IPV4 NAT gateways?

A. dual stack XX
B. dynamic
C. Teredo
D. Manual 6to4

Correct Answer: C
Section: (none)

Explanation

Explanation/Reference:
Explanation:

QUESTION 294
How many primary ipv4 addresses can be assigned on a router interface?

A. 0
B. 1
C. 4
D. Unlimited

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Cisco IOS software supports multiple IP addresses per interface. You can specify an unlimited number of secondary addresses but only one primary one.
Reference: http://www.cisco.com/c/en/us/td/docs/ios/12_2/ip/configuration/guide/fipr_c/1cfipadr.html

QUESTION 295
Which command is used to build DHCP pool?

A. ip dhcp conflict
B. ip dhcp-server pool DHCP
C. ip dhcp pool DHCP
D. ip dhcp-client pool DHCP

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 296
You are configuring dynamic NAT on your Cisco IOS router. Which command is used to verify the interfaces that are being used as the outside interface and the inside interface?

A. show interfaces
B. show ip route
C. show ipnat translations
D. show ip interface brief
E. show ip interface
F. show ip nat statistics

Correct Answer: F
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 297
What disables CEF?

A. RIB
B. IPv6
C. Ping
D. Disable Logging

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 298
What is the default configuration of a Cisco switch?

A. No default gateway assigned
B. System name is Cisco

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 299
Which technology allows a large number of private IP addresses to be represented by a smaller number of public IP addresses?

A. NAT
B. NTP
C. RFC 1631
D. RFC 1918

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 300
Which command can you enter to verify that a 128-bit address is live and responding?

A. traceroute
B. telnet
C. ping
D. ping ipv6

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 301
Refer to the exhibit. You have discovered that computers on the 192.168.10.0/24 network can ping their default gateway, but they cannot connect to any resources on a remote network. Which reason for the problem is most likely true?

```
R1
interface Loopback0
   ip address 172.16.1.1 255.255.255.255

interface FastEthernet0/0
   ip address 192.168.12.1 255.255.255.0

interface FastEthernet0/1
   ip address 192.168.10.1 255.255.255.0

router ospf 1
   router-id 172.16.1.1
   network 172.16.1.1 0.0.0.0 area 0
   network 192.168.10.0.0.0.255 area 0
```

A. The 192.168.12.0/24 network is missing from OSPF
B. The OSPF process ID is incorrect
C. The OSPF area number is incorrect.
D. An ARP table entry is missing for 192.168.10.0.
E. A VLAN number is incorrect for 192.168.10.0.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 302
What is true about ipv6 unique local addresses:

A. Global id
B. Public routable
C. Summarization

D. Unique prefix

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 303
If three devices are plugged into one port on a switch and two devices are plugged into a different port, how many collision domains are on the switch?

A. 2
B. 4
C. 5
D. 6

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 304
Which three commands must you enter to create a trunk that allows VLAN 20? (Choose three)

A. Switch(config-if)#switchport mode dynamic auto
B. Switch(config-if)#switchport mode trunk
C. Switch(config-if)#switchport trunk allowed vlan 20
D. Switch(config-if)#switchport mode dynamic desirable
E. Switch(config-if)#switchport trunk encapsulation dotlq
F. Switch(config-if)#switchport trunk native vlan 20

Correct Answer: BCE
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 305
Which three options are types of Layer 2 network attack? (Choose three.)

A. ARP attacks
B. brute force attacks
C. spoofing attacks
D. DDOS attacks
E. VLAN hopping
F. botnet attacks

Correct Answer: ACE
Section: (none)

Explanation

Explanation/Reference:
Explanation

QUESTION 306
How does a router handle an incoming packet whose destination network is missing from the Routing table?

A. it discards the packet.
B. it broadcasts the packet to each network on the router.
C. it routes the packet to the default route.
D. it broadcasts the packet to each interface on the router.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 307
Which feature facilitates the tagging of frames on a specific VLAN?

A. Routing
B. hairpinning
C. switching
D. encapsulation

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 308
When you troubleshoot an IPv4 connectivity issue on a router, which three router configuration checks you must perform? (Choose three)

A. Verify that the router interface IP address IP address is correct.
B. Verify that the DNS is configured correctly.
C. Verify that the router and the host use the same subnet mask.
D. Verify that the router firmware is up-to-date.
E. Verify that a default route is configured.
F. Verify that the route appears in the Routing table

Correct Answer: ACF
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 309

Which two statements about unique local IPv6 addresses are true? (Choose two)

A. They are identical to IPv4 private addresses.
B. They are defined by RFC 1884.
C. They use the prefix FEC0::/10
D. They use the prefix FC00::/7
E. They can be routed on the IPv6 global internet.

Correct Answer: AD
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 310
Which header field is new in IPv6?

A. Hop Limit
B. Flow Label
C. Version
D. Traffic Class

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 311

To allow or prevent load balancing to network 172.16.3.0/24, which of the following commands could be used in R2? (Choose two.)

A. R2(config-if)#clock rate
B. R2(config-if)#bandwidth
C. R2(config-if)#ip ospf cost
D. R2(config-if)#ip ospf priority
E. R2(config-router)#distance ospf

Correct Answer: BC
Section: (none)
Explanation

Explanation/Reference:
Explanation:
http://www.cisco.com/en/US/tech/tk365/technologies_white_paper09186a0080094e9e.shtml#t6

The cost (also called metric) of an interface in OSPF is an indication of the overhead required to send packets across a certain interface. The cost of an interface is inversely proportional to the bandwidth of that interface. A higher bandwidth indicates a lower cost. There is more overhead (higher cost) and time delays involved in crossing a 56k serial line than crossing a 10M Ethernet line. The formula used to calculate the cost is:
Cost = 10000 0000/bandwidth in bps

For example, it will cost 10 EXP8/10 EXP7 = 10 to cross a 10M Ethernet line and will cost 10 EXP8/1544000 =64 to cross a T1 line.
By default, the cost of an interface is calculated based on the bandwidth; you can force the cost of an interface with the ip ospf cost <value> interface subconfiguration mode command.

QUESTION 312
After the network has converged, what type of messaging, if any, occurs between R3 and R4?

A. No messages are exchanged
B. Hellos are sent every 10 seconds.
C. The full database from each router is sent every 30 seconds.
D. The routing table from each router is sent every 60 seconds.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
HELLO messages are used to maintain adjacent neighbors so even when the network is converged, hellos are still exchanged. On broadcast and point-to-point links, the default is 10 seconds, on NBMA the default is 30 seconds.

Although OSPF is a link-state protocol but the full database from each router is sent every 30 minutes (not seconds) -> C and D are not correct.

QUESTION 313
OSPF is configured using default classful addressing. With all routers and interfaces operational, how many networks will be in the routing table of R1 that are indicated to be learned by OSPF?

A. 2
B. 3
C. 4
D. 5
E. 6
F. 7

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 314
R1 is configured with the default configuration of OSPF. From the following list of IP addresses configured on

R1, which address will the OSPF process select as the router ID?

A. 192.168.0.1
B. 172.16.1.1
C. 172.16.2.1
D. 172.16.2.225

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The Router ID (RID) is an IP address used to identify the router and is chosen using the following sequence:
+ The highest IP address assigned to a loopback (logical) interface.
+ If a loopback interface is not defined, the highest IP address of all
active router's physical interfaces will be chosen.
+ The router ID can be manually assigned
In this case, because a loopback interface is not configured so the highest active IP address 192.168.0.1 is chosen as the router ID.

QUESTION 315
R1 is unable to establish an OSPF neighbor relationship with R3. What are possible reasons for this problem?

(Choose two)

A. All of the routers need to be configured for backbone Area 1.
B. R1 and R2 are the DR and BDR, so OSPF will not establish neighbor adjacency with R3.
C. A static route has been configured from R1 to R3 and prevents the neighbor adjacency from being established.
D. The hello and dead interval timers are not set to the same values on R1 and R3.
E. EIGRP is also configured on these routers with a lower administrative distance.
F. R1 and R3 are configured in different areas.

Correct Answer: DF
Section: (none)
Explanation

Explanation/Reference:
Explanation:
To become OSPF neighbors, routers must meet these requirements: Hello interval, Dead interval and AREA number -> D and F are correct.

QUESTION 316
DRAG DROP
This topology contains 3 routers and 1 switch. Complete the topology.

Drag the appropriate device icons to the labeled Device
Drag the appropriate connections to the locations labeled Connections. Drag the appropriate IP addresses to the locations labeled IP address

(Hint: use the given host addresses and Main router information) To remove a device or connection, drag it

away from the topology.
Use information gathered from the Main router to complete the configuration of any additional routers. No passwords are required to access the Main router. The config terminal command has been disabled for the HQ router. The router does not require any configuration.

Configure each additional router with the following:

Configure the interfaces with the correct IP address and enable the interfaces. Set the password to allow console access to consolepw
Set the password to allow telnet access to telnetpw
Set the password to allow privilege mode access to privpw

Note: Because routes are not being added to the configurations, you will not be able to ping through the internetwork.
All devices have cable autosensing capabilities disabled.
All hosts are PC's

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:
Explanation:
(1) Configure two routers on the left and right with these commands:

Router1 = router on the left

(2) Assign appropriate IP addresses to Fa0/0 & Fa0/1 interfaces:

```
Router1>enable
Router1#configure terminal
Router1(config)#interface fa0/0
Router1(config-if)#ip address 192.168.152.190 255.255.255.240
Router1(config-if)#no shutdown

Router1(config-if)#interface fa0/1
Router1(config-if)#ip address 192.168.152.142 255.255.255.240
Router1(config-if)#no shutdown
```

(3) Set passwords (configure on two routers)

+ Console password:

Router1(config-if)#exit Router1(config)#line console 0 Router1(config-line)#password consolepw Router1 (config-line)#login Router1(config-line)#exit

+ Telnet password:

Router1(config)#line vty 0 4
Router1(config-line)#password telnetpw
Router1(config-line)#login

Router1(config-line)#exit

+ Privilege mode password:

Router1(config)#enable password privpw

Save the configuration:

Router1(config)#exit
Router1#copy running-config startup-config

(4) Configure IP addresses of Router2 (router on the right)

Router2>enable
Router2#configure terminal
Router2(config)#interface fa0/0
Router2(config-if)#ip address 192.168.152.238 255.255.255.240
Router2(config-if)#no shutdown

Router2(config-if)#interface serial0/0
Router2(config-if)#ip address 192.168.152.174 255.255.255.240
Router2(config-if)#no shutdown

QUESTION 317

Topology
Console
ISP
Router1
S0/0
Switch1

What is the subnet broadcast address of the LAN connected to Router1?

A. 192.168.8.15
B. 192.168.8.31
C. 192.168.8.63
D. 192.168.8.127

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:

User the "show interface fa0/1" command

QUESTION 318

Instructions

You can click on the grey buttons below to view the different windows.

Each of the windows can be minimized by clicking on the [-]. You can also reposition a window by dragging it by the title bar.

The "Tab" key and most commands that use the "Control" or "Escape" keys are not supported and are not necessary to complete this simulation.

Scenario

This task requires the use of various **show** commands from the CLI of Router1 to answer four multiple-choice questions. This task does **not** require any configuration.

NOTE: The show running-configuration and the show startup-configuration commands have been disabled in this simulation.

To access the multiple-choice questions, click on the numbered boxes on the right of the top panel.

There are 4 multiple-choice questions with this task. Be sure to answer all 4 questions before leaving this item.

Topology

What is the bandwidth on the WAN interface of Router1?

A. 16 Kbit/sec
B. 32 Kbit/sec
C. 64 Kbit/sec
D. 128 Kbit/sec
E. 512 Kbit/sec
F. 1544 Kbit/sec

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Use the “show interface s0/0” to see the bandwidth set at 16 Kbit/sec.

QUESTION 319
DRAG DROP
Drag and drop the extended traceout option from the left onto the correct description on the right.

Select and Place:

Answer Area

maximum time to live	A value that, when reached, terminates the traceroute command.
minimum time to live	IP header options.
numeric display	Overrides the router's selection of an outbound interface.
source address	Sets the interval for which the probe will wait for a response.
timeout	Suppresses the display of known hops.
timestamp, verbose	Suppresses the display of hostnames.

Correct Answer:

Answer Area

	maximum time to live
	timestamp, verbose
	source address
	timeout
	minimum time to live
	numeric display

Section: (none)
Explanation

Explanation/Reference:

QUESTION 320

Instructions

You can click on the grey buttons below to view the different windows.

Each of the windows can be minimized by clicking on the [-]. You can also reposition a window by dragging it by the title bar.

The "Tab" key and most commands that use the "Control" or "Escape" keys are not supported and are not necessary to complete this simulation.

Scenario

This task requires the use of various **show** commands from the CLI of Router1 to answer four multiple-choice questions. This task does **not** require any configuration.

NOTE: The show running-configuration and the show startup-configuration commands have been disabled in this simulation.

To access the multiple-choice questions, click on the numbered boxes on the right of the top panel.

There are 4 multiple-choice questions with this task. Be sure to answer all 4 questions before leaving this item.

Topology

The hosts in the LAN are not able to connect to the Internet. Which commands will correct this issue?

A. Router1(conf)#interface fa0/0
   Router1(conf-if)# no shutdown
B. Router1(conf)#interface fa0/1
   Router1(conf-if)# no shutdown
C. Router1(conf)#interface s0/0
   Router1(conf-if)# no shutdown
D. Router1(conf)#interface s0/1
   Router1(conf-if)# no shutdown
E. Router1(conf)#interface s0/0
   Router1(conf-if)# ip address 10.11.12.13 255.255.255.252
F. Router1(conf)#interface s0/1
   Router1(conf-if)# ip address 10.100.1. 1255.255.255.252

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
User the "show ip interface brief" command

From the output, we learn that the status of Serial0/0 interface which connects to ISP router is currently "administratively down". This status indicates this interface is shutting down so we need to turn it on.

QUESTION 321
SIMULATION
Instructions
To configure the router (**Gotha**) click on the console host icon that is connected to a router by a serial console cable (shown in the diagram as a dashed black line).

You can click on the buttons below to view the different windows.

Each of the windows can be minimized by clicking on the [-]. You can also reposition a window by dragging it by the title bar.

The “Tab” key and most commands that use the “Control” or “Escape” keys are not supported and are not necessary to complete this simulation. The **help** command does not display all commands of the help system.

Scenario
Central Florida Widgets recently installed a new router in their Gotha office. Complete the network installation by performing the initial router configurations and configuring RIPv2 routing using the router command line interface (CLI) on the Gotha router.

Configure the router per the following requirements:
Name of the router is **Gotha**
Enable-secret password is **mi222ke**
The password access user EXEC mode using the console is **G8tors1**
The password to allow telnet access to the router is **dun63ap**
IPv4 addresses must be configured as follows:
Ethernet network **209.165.201.0/27** – router has **fourth** assignable host address in subnet.
Serial network is **192.0.2.176/28** – router has **last** assignable host address in the subnet.
Interface should be enabled.

Routing protocol is **RIPv2**.

Attention:
In practical examinations, please note the following, the actual information will prevail.

1. Name of the router is xxx
2. Enable. secret password is xxx
3. Password In access user EXEC mode using the console is xxx
4. The password to allow telnet access to the router is xxx
5. IP information

Correct Answer: See explanation
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Router>enable
Router#config terminal
Router(config)#hostname Gotha

2) Enable-secret password (cisco10):

Gotha(config)#enable secret mi222ke

3) Set the console password to G8tors1:

Gotha(config)#line console 0
Gotha(config-line)#password G8tors1
Gotha(config-line)#login
Gotha(config-line)#exit

4) Set the Telnet password to dun63lap:

Gotha(config)#line vty 0 4
Gotha(config-line)#password dun63lap
Gotha(config-line)#login
Gotha(config-line)#exit

5) Configure Ethernet interface (on the right) of router Gotha:
Ethernet network 209.165.201.0 /27 - Router has the fourth assignable host address in subnet.
Ethernet Interface on router R2 is Fast Ethernet 0/0 as per the exhibit
First we need to identify the subnet mask

Network: 209.165.201.0 /27
Subnet mask: /27: 27 bits = 8 + 8 + 8 + 3
=8(bits).8(bits).8(bits) .11100000 (3bits)
=255.255.255.11100000
=11100000 = 128+64+32+0+0+0+0+0
= 224
Subnet mask: 255.255.255.224
Different subnet networks and there valid first and last assignable host address range for above subnet mask are
Subnet Networks :::::: Valid Host address range :::::: Broadcast address
209.165.201.0 :::::: 209.165.201.1 - 209.165.201.30 ::::: 209.165.201.31
209.165.201.32 :::::: 209.165.201.33 - 209.165.201.62 ::::: 209.165.201.63
209.165.201.64 :::::: 209.165.201.65 - 209.165.201.94 :::::: 209.165.201.95
209.165.201.96 :::::: 209.165.201.97 - 209.165.201.126 :::::: 209.165.201.127
209.165.201.128 :::::: 209.165.201.129 - 209.165.201.158 :::::: 209.165.201.159
209.165.201.160 :::::: 209.165.201.161 - 209.165.201.190 :::::: 209.165.201.191
209.165.201.192 :::::: 209.165.201.193 - 209.165.201.222 :::::: 209.165.201.223
209. 165.201.224 :::::: 209.165.201.225 - 209.165.201.254 :::::: 209.165.201.255 Use above table information for network 209.165.201.0 /27 to identify First assignable host address: 209.165.201.1
Last assignable host address: 209.165.201.30
Fourth assignable host address: 209.165.201.4

Assign the fourth assignable host address to Fa0/0 interface of Gotha router:

Gotha(config)#interface Fa0/0
Gotha(config-if)#ip address 209.165.201.4 255.255.255.224
Gotha(config-if)#no shutdown
Gotha(config-if)#exit

6) Configure Serial interface (on the left) of router Gotha:
Serial Network is 192.0.2.176 /28 - Router has the last assignable host address in subnet.
Serial Interface on R2 is Serial 0/0/0 as per the exhibit
First we need to identify the subnet mask
Network: 192.0.2.176 /28
Subnet mask: /28: 28bits = 8bits+8bits+8bits+4bits
=8(bits).8(bits).8(bits) .11110000 (4bits)
=255.255.255.11100000
=11100000 = 128+64+32+16+0+0+0+0
= 240
Subnet mask: 255.255.255.240
Different subnet networks and there valid first and last assignable host address range for above subnet mask are
Subnet Networks ::::: Valid Host address :::::::::: Broadcast address
192.0.2.0 :::::: 192.0.2.1 - 192.0.2.14 ::::::: 192.0.2.15
192.0.2.16 ::::::: 192.0.2.17 - 192.0.2.30 ::::::: 192.0.2.31
192.0.2.32 :::::::: 192.0.2.33 - 192.0.2.46 :::::: 192.0.2.47
192.0.2.48 :::::: 192.0.2.49 - 192.0.2.62 ::::::: 192.0.2.64
192.0.2.64 ::::::: 192.0.2.65 - 192.0.2.78 ::::::: 192.0.2.79

192.0.2.80 :::::::: 192.0.2.81 - 192.0.2.94 :::::: 192.0.2.95
192.0.2.96 :::::: 192.0.2.97 - 192.0.2.110 ::::::: 192.0.2.111
192.0.2.112 ::::::: 192.0.2.113 - 192.0.2.126 ::::::: 192.0.2.127
192.0.2.128 :::::::: 192.0.2.129 - 192.0.2.142 :::::: 192.0.2.143
192.0.2.144 :::::: 192.0.2.145 - 192.0.2.158 ::::::: 192.0.2.159
192.0.2.160 ::::::: 192.0.2.161 - 192.0.2.174 ::::::: 192.0.2.175
192. 0.2.176 :::::::: 192.0.2.177 - 192.0.2.190 :::::: 192.0.2.191 and so on ….
Use above table information for network 192.0.2.176 /28 to identify
First assignable host address: 192.0.2.177
Last assignable host address: 192.0.2.190

We need to configure Last assignable host address (192.0.2.190) on serial 0/0/0 using the subnet mask 255.255.255.240

Assign the last assignable host address to S0/0/0 interface of Gotha router:

Gotha(config)#interface S0/0/0 (or use interface S0/0 if not successful)
Gotha(config-if)#ip address 192.0.2.190 255.255.255.240
Gotha(config-if)#no shutdown
Gotha(config-if)#exit

7) Configure RIP v2 routing protocol:

Gotha(config)#router rip Gotha(config-router)#version 2 Gotha(config-router)#network 209.165.201.0 Gotha (config-router)#network 192.0.2.176 Gotha(config-router)#end

Save the configuration:

Gotha#copy running-config startup-config

Finally, you should use the ping command to verify all are working properly!

QUESTION 322
Refer to the topology. Your company has decided to connect the main office with three other remote branch offices using point-to-point serial links. You are required to troubleshoot and resolve OSPF neighbor adjacency issues between the main office and the routers located in the remote branch offices.

An OSPF neighbor adjacency is not formed between R3 in the main office and R5 in the Branch2 office. What is causing the problem?

A. There is an area ID mismatch.
B. There is a PPP authentication issue; a password mismatch.
C. There is an OSPF hello and dead interval mismatch.
D. There is a missing network command in the OSPF process on R5.

Correct Answer: C
Section: (none)

Explanation

Explanation/Reference:
Explanation:
The "show ip ospf interface command on R3 and R5 shows that the hello and dead intervals do not match. They are 50 and 200 on R3 and 10 and 40 on R5.

QUESTION 323
Refer to the topology. Your company has decided to connect the main office with three other remote branch offices using point-to-point serial links. You are required to troubleshoot and resolve OSPF neighbor adjacency issues between the main office and the routers located in the remote branch offices.

R1 does not form an OSPF neighbor adjacency with R2. Which option would fix the issue?

A. R1 ethernetO/1 is shutdown. Configure no shutdown command.
B. R1 ethernetO/1 configured with a non-default OSPF hello interval of 25: configure no ip ospf hello-interval 25
C. R2 ethernetO/1 and R3 ethernetO/O are configured with a non-default OSPF hello interval of 25; configure no ip ospf hello-interval 25

D. Enable OSPF for R1 ethernetO/1; configure ip ospf 1 area 0 command under ethernetO/1

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Looking at the configuration of R1, we see that R1 is configured with a hello interval of 25 on interface Ethernet 0/1 while R2 is left with the default of 10 (not configured).

R1

```
!
!
!
!
!
interface Loopback0
 description ***Loopback***
 ip address 192.168.1.1 255.255.255.255
 ip ospf 1 area 0
!
interface Ethernet0/0
 description ***Connected to R1-LAN***
 ip address 10.10.110.1 255.255.255.0
 ip ospf 1 area 0
!
interface Ethernet0/1
 description ***Connected to L2SW***
 ip address 10.10.230.1 255.255.255.0
 ip ospf hello-interval 25
 ip ospf 1 area 0
!
interface Ethernet0/2
 no ip address
 shutdown


 --- More (35) ---
```

R2

```
!
!
!
!
!
!
interface Loopback0
 description ***Loopback***
 ip address 192.168.2.2 255.255.255.255
 ip ospf 2 area 0
!
interface Ethernet0/0
 description ***Connected to R2-LAN***
 ip address 10.10.120.1 255.255.255.0
 ip ospf 2 area 0
!
interface Ethernet0/1
 description ***Connected to L2SW***
 ip address 10.10.230.2 255.255.255.0
 ip ospf 2 area 0
!
interface Ethernet0/2
 no ip address
 shutdown


 --- More (35) ---
```

QUESTION 324
Refer to the topology. Your company has decided to connect the main office with three other remote branch offices using point-to-point serial links. You are required to troubleshoot and resolve OSPF neighbor adjacency issues between the main office and the routers located in the remote branch offices.

An OSPF neighbor adjacency is not formed between R3 in the main office and R6 in the Branch3 office. What is causing the problem?

A. There is an area ID mismatch.
B. There is a PPP authentication issue; the username is not configured on R3 and R6.
C. There is an OSPF hello and dead interval mismatch.
D. The R3 router ID is configured on R6.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Using the show running-config command we see that R6 has been incorrectly configured with the same router ID as R3 under the router OSPF process.

R3

```
 ip address 10.10.240.5 255.255.255.252
 encapsulation ppp
 ip ospf hello-interval 50
 ip ospf 3 area 0
 ppp authentication chap
 serial restart-delay 0
!
interface Serial1/2
 description ***Connected to R6-Branch3 office***
 ip address 10.10.240.9 255.255.255.252
 encapsulation ppp
 ip ospf 3 area 0
 ppp authentication chap
 serial restart-delay 0
!
interface Serial1/3
 no ip address
 shutdown
 serial restart-delay 0
!
router ospf 3
 router-id 192.168.3.3
!
ip forward-protocol nd



!
```

R6

```
 no ip address
 shutdown
 serial restart-delay 0
!
interface Serial1/2
 no ip address
 shutdown
 serial restart-delay 0
!
interface Serial1/3
 no ip address
 shutdown
 serial restart-delay 0
!
router ospf 6
 router-id 192.168.3.3
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
!



!
```

QUESTION 325

Instructions

You can click on the grey buttons below to view the different windows.

Each of the windows can be minimized by clicking on the [-]. You can also reposition a window by dragging it by the title bar.

The "Tab" key and most commands that use the "Control" or "Escape" keys are not supported and are not necessary to complete this simulation.

Scenario

This task requires the use of various **show** commands from the CLI of Router1 to answer four multiple-choice questions. This task does **not** require any configuration.

NOTE: The show running-configuration and the show startup-configuration commands have been disabled in this simulation.

To access the multiple-choice questions, click on the numbered boxes on the right of the top panel.

There are 4 multiple-choice questions with this task. Be sure to answer all 4 questions before leaving this item.

What interfaces on Router1 have not had any configurations applied? (Choose two.)

A. Ethernet 0
B. FastEthernet 0/0
C. FastEthernet 0/1
D. Serial 0
E. Serial 0/0
F. Serial 0/1

Correct Answer: BF
Section: (none)
Explanation

Explanation/Reference:
Explanation:

User the "show ip interface brief" command
Notice that Router1 does not have Ethernet 0 and Serial 0 interfaces. FastEthernet 0/1 and Serial 0/0 were configured with their IP addresses therefore only FastEthernet 0/0 and Serial0/1 have not had any configurations applied.

QUESTION 326

Including the address on the Router1 Ethernet interface, how many hosts can have IP addresses on the LAN to which Router1 is connected?

A. 6
B. 14
C. 62
D. 126

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
The mask address of interface Fa0/1 of Router1 is /28, which has four 0 bits (1111 1111.1111 1111.1111 1111.1111 0000). Therefore, there are 24 – 2 = 14 assignable IP addresses for hosts on the LAN.

QUESTION 327
Click on the correct location or locations in the exhibit.

Instructions

This item contains several questions that you must answer. You can view these questions by clicking on the corresponding button to the left. Changing questions can be accomplished by clicking the numbers to the left of each question. In order to complete the questions, you will need to refer to the Exhibit.

To gain access to the Exhibit, click on the Exhibit button at the bottom of the screen. When you have finished viewing the Exhibit, you can return to your questions by clicking on the Questions button to the left.

Each of the windows can be minimized by clicking on the [-]. You can also reposition a window by dragging it by the title bar.

Scenario

Refer to the Exhibit. As the first step in verifying a local host configuration, a network technician issues the **ipconfig /all** command on a computer. Use the results of the command to answer the five questions shown on the Questions tab.

Exhibit

C:\WINNT\system32\cmd.exe

```
        Connection-specific DNS Suffix  . : cisco.com
        Description . . . . . . . . . . . : Intel(R) PRO/1000 MT Mobile

        Physical Address. . . . . . . . . : 00-0D-60-FD-F0-34
        DHCP Enabled. . . . . . . . . . . : Yes
        Autoconfiguration Enabled . . . . : Yes
        IP Address. . . . . . . . . . . . : 172.16.236.227
        Subnet Mask . . . . . . . . . . . : 255.255.255.0
        Default Gateway . . . . . . . . . : 172.16.236.1
        DHCP Server . . . . . . . . . . . : 172.16.3.2
        DNS Servers . . . . . . . . . . . : 10.4.8.1
                                            10.5.2.22
        Primary WINS Server . . . . . . . : 10.69.2.87
        Secondary WINS Server . . . . . . : 10.69.235.228
        Lease Obtained. . . . . . . . . . : Monday, June 11, 2007 9:26:45 AM
        Lease Expires . . . . . . . . . . : Thursday, June 14, 2007 9:26:45 AM

Ethernet adapter Local Area Connection:

        Media State . . . . . . . . . . . : Cable Disconnected
        Description . . . . . . . . . . . : Cisco Systems Wireless LAN Adapter

        Physical Address. . . . . . . . . : 00-0E-9B-48-86-2A
```

Which of these destination addresses does not require the use of the default gateway for a packet from this local host?

A. 10.4.8.2
B. 10.5.2.27
C. 10.68.2.88
D. 172.16.3.228
E. 172.16.236.4

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:
Explanation:

QUESTION 328
Click on the correct location or locations in the exhibit.

Exhibit

```
C:\WINNT\system32\cmd.exe

        Connection-specific DNS Suffix  . : cisco.com
        Description . . . . . . . . . . . : Intel(R) PRO/1000 MT Mobile

        Physical Address. . . . . . . . . : 00-0D-60-FD-F0-34
        DHCP Enabled. . . . . . . . . . . : Yes
        Autoconfiguration Enabled . . . . : Yes
        IP Address. . . . . . . . . . . . : 172.16.236.227
        Subnet Mask . . . . . . . . . . . : 255.255.255.0
        Default Gateway . . . . . . . . . : 172.16.236.1
        DHCP Server . . . . . . . . . . . : 172.16.3.2
        DNS Servers . . . . . . . . . . . : 10.4.8.1
                                            10.5.2.22
        Primary WINS Server . . . . . . . : 10.69.2.87
        Secondary WINS Server . . . . . . : 10.69.235.228
        Lease Obtained. . . . . . . . . . : Monday, June 11, 2007 9:26:45 AM
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Ethernet adapter Local Area Connection:

        Media State . . . . . . . . . . . : Cable Disconnected
        Description . . . . . . . . . . . : Cisco Systems Wireless LAN Adapter

        Physical Address. . . . . . . . . : 00-0E-9B-48-86-2A
```

Which IP address represents the first server this computer will attempt to contact to resolve an Internet web site URL to an IP address?

A. 10.4.8.1
B. 10.69.2.87
C. 172.16.3.2
D. 172.16.236.1

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 329
Click on the correct location or locations in the exhibit.

Instructions

This item contains several questions that you must answer. You can view these questions by clicking on the corresponding button to the left. Changing questions can be accomplished by clicking the numbers to the left of each question. In order to complete the questions, you will need to refer to the Exhibit.

To gain access to the Exhibit, click on the Exhibit button at the bottom of the screen. When you have finished viewing the Exhibit, you can return to your questions by clicking on the Questions button to the left.

Each of the windows can be minimized by clicking on the [-]. You can also reposition a window by dragging it by the title bar.

Scenario

Refer to the Exhibit. As the first step in verifying a local host configuration, a network technician issues the **ipconfig /all** command on a computer. Use the results of the command to answer the five questions shown on the Questions tab.

Exhibit

C:\WINNT\system32\cmd.exe

```
        Connection-specific DNS Suffix  . : cisco.com
        Description . . . . . . . . . . . : Intel(R) PRO/1000 MT Mobile

        Physical Address. . . . . . . . . : 00-0D-60-FD-F0-34
        DHCP Enabled. . . . . . . . . . . : Yes
        Autoconfiguration Enabled . . . . : Yes
        IP Address. . . . . . . . . . . . : 172.16.236.227
        Subnet Mask . . . . . . . . . . . : 255.255.255.0
        Default Gateway . . . . . . . . . : 172.16.236.1
        DHCP Server . . . . . . . . . . . : 172.16.3.2
        DNS Servers . . . . . . . . . . . : 10.4.8.1
                                            10.5.2.22
        Primary WINS Server . . . . . . . : 10.69.2.87
        Secondary WINS Server . . . . . . : 10.69.235.228
        Lease Obtained. . . . . . . . . . : Monday, June 11, 2007 9:26:45 AM
        Lease Expires . . . . . . . . . . : Thursday, June 14, 2007 9:26:45 AM

Ethernet adapter Local Area Connection:

        Media State . . . . . . . . . . . : Cable Disconnected
        Description . . . . . . . . . . . : Cisco Systems Wireless LAN Adapter

        Physical Address. . . . . . . . . : 00-0E-9B-48-86-2A
```

From this computer, the network technician is able to successfully ping to the IP address of the primary DNS server configured on the computer. What can the network technician determine about the network?

A. The DNS server is able to resolve domain names to IP addresses.
B. The router with address 172.16.3.2 has the correct route to the 10.0.0.0 network.
C. The names of all the routes in the path can be resolved by the configured DNS servers.
D. The router with address 172.16.236.1 has a route it can use to reach network of the DNS server.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 330
Click on the correct location or locations in the exhibit.

Exhibit

```
C:\WINNT\system32\cmd.exe

        Connection-specific DNS Suffix  . : cisco.com
        Description . . . . . . . . . . . : Intel(R) PRO/1000 MT Mobile

        Physical Address. . . . . . . . . : 00-0D-60-FD-F0-34
        DHCP Enabled. . . . . . . . . . . : Yes
        Autoconfiguration Enabled . . . . : Yes
        IP Address. . . . . . . . . . . . : 172.16.236.227
        Subnet Mask . . . . . . . . . . . : 255.255.255.0
        Default Gateway . . . . . . . . . : 172.16.236.1
        DHCP Server . . . . . . . . . . . : 172.16.3.2
        DNS Servers . . . . . . . . . . . : 10.4.8.1
                                            10.5.2.22
        Primary WINS Server . . . . . . . : 10.69.2.87
        Secondary WINS Server . . . . . . : 10.69.235.228
        Lease Obtained. . . . . . . . . . : Monday, June 11, 2007 9:26:45 AM
        Lease Expires . . . . . . . . . . : Thursday, June 14, 2007 9:26:45 AM

Ethernet adapter Local Area Connection:

        Media State . . . . . . . . . . . : Cable Disconnected
        Description . . . . . . . . . . . : Cisco Systems Wireless LAN Adapter

        Physical Address. . . . . . . . . : 00-0E-9B-48-86-2A
```

What two things can the technician determine by successfully pinging from this computer to the IP address 172.16.236.1? (Choose two.)

A. The network card on the computer is functioning correctly.
B. The default static route on the gateway router is correctly configured.
C. The correct default gateway IP address is configured on the computer.
D. The device with the IP address 172.16.236.1 is reachable over the network.
E. The device gateway at 172.16.236.1 is able to forward packets to the Internet.

Correct Answer: AD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 331
Click on the correct location or locations in the exhibit.

Instructions

This item contains several questions that you must answer. You can view these questions by clicking on the corresponding button to the left. Changing questions can be accomplished by clicking the numbers to the left of each question. In order to complete the questions, you will need to refer to the Exhibit.

To gain access to the Exhibit, click on the Exhibit button at the bottom of the screen. When you have finished viewing the Exhibit, you can return to your questions by clicking on the Questions button to the left.

Each of the windows can be minimized by clicking on the [-]. You can also reposition a window by dragging it by the title bar.

Scenario

Refer to the Exhibit. As the first step in verifying a local host configuration, a network technician issues the **ipconfig /all** command on a computer. Use the results of the command to answer the five questions shown on the Questions tab.

Exhibit

C:\WINNT\system32\cmd.exe

```
        Connection-specific DNS Suffix  . : cisco.com
        Description . . . . . . . . . . . : Intel(R) PRO/1000 MT Mobile

        Physical Address. . . . . . . . . : 00-0D-60-FD-F0-34
        DHCP Enabled. . . . . . . . . . . : Yes
        Autoconfiguration Enabled . . . . : Yes
        IP Address. . . . . . . . . . . . : 172.16.236.227
        Subnet Mask . . . . . . . . . . . : 255.255.255.0
        Default Gateway . . . . . . . . . : 172.16.236.1
        DHCP Server . . . . . . . . . . . : 172.16.3.2
        DNS Servers . . . . . . . . . . . : 10.4.8.1
                                            10.5.2.22
        Primary WINS Server . . . . . . . : 10.69.2.87
        Secondary WINS Server . . . . . . : 10.69.235.228
        Lease Obtained. . . . . . . . . . : Monday, June 11, 2007 9:26:45 AM
        Lease Expires . . . . . . . . . . : Thursday, June 14, 2007 9:26:45 AM

Ethernet adapter Local Area Connection:

        Media State . . . . . . . . . . . : Cable Disconnected
        Description . . . . . . . . . . . : Cisco Systems Wireless LAN Adapter

        Physical Address. . . . . . . . . : 00-0E-9B-48-86-2A
```

Whit statement is true about how the router with the IP address 172.16.236.1 will send a data packet to this computer?

A. The router encapsulates the packet in a frame addressed to the MAC address FF-FF-FF-FF-FF-FF and sends it out the interface connected to the 172.16.236.0 network.
B. The router uses an ARP request to obtain the correct MAC address for the computer. It then encapsulates the packet in a frame addressed to the MAC address 00-0D-60-FD-F0-34.
C. The router encapsulates the packet in a frame addressed to the MAC address of the next hop router on the path to the computer.
D. The router works at Layer 3 of the OSI model and does not use Layer 2 MAC addresses to send packets to the destination computer.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 332
DRAG DROP
On the left are various network protocols. On the right are the layers of the TCP/IP model. Assuming a reliable connection is required, move the protocols on the left to the TCP/IP layers on the right to show the proper encapsulation for an email message sent by a host on a LAN. (Not all options are used.)

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 333
DRAG DROP
Various protocols are listed on the left On the right are applications for the use of those protocols. Drag the protocol on the left to an associated function for that protocol on the right (Not all options are used).

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 334
DRAG DROP
Move the protocol or service on the left to a situation on the right where it would be used. (Not all options are used).

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 335
DRAG DROP
Drag the definition on the left to the correct term on the right. Not all definitions on the left will be used.

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 336
DRAG DROP
Drag the appropriate command on the left to the configuration task it accomplishes (not all options are used).

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:
Explanation:

service password-encryption	encrypt all clear text passwords
line console 0 password friendS0nly	protect access to the user mode prompt
enable secret noWay1n4u	set privileged mode encrypted password
line vty 0 4 password 2hard2Guess	set password to allow Telnet connections
enable password uwi11NeverNo	set privileged mode clear text password

QUESTION 337
Scenario:

You work for a company that provides managed network services, and of your real estate clients running a

small office is experiencing network issues, Troubleshoot the network issues.

Router R1 connects the main office to internet, and routers R2 and R3 are internal routers NAT is enabled on Router R1.
The routing protocol that is enable between routers R1, R2, and R3 is RIPv2.
R1 sends default route into RIPv2 for internal routers to forward internet traffic to R1.

Server1 and Server2 are placed in VLAN 100 and 200 respectively, and dare still running router on stick configuration with router R2.
You have console access on R1, R2, R3, and L2SW1 devices.
Use only show commands to troubleshoot the issues.

Instructions
Enter IOS commands on the device to verify network operation and answer the multiple-choice questions.
This task does not require device configuration.
Click the device icon to gain access to the console of the device. No console or enable passwords are required.
To access the multiple-choice questions, click the numbered boxes on the left of the top panel.
There are four multiple-choice questions with this task. Be sure to answer all four questions before clicking Next.

R1

```
R1#show r
R1#show run
R1#show running-config
Building configuration…

Current configuration : 1438 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R1
!
Boot-start-marker
Boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
nni polling-interval 60
no nni auto-configure
no nni pvc
nni snmp-timeout 180
!
!
!
!
```

R1

```
!
!
!
!
ip cef
no ipv6 cef
!
multilink bundle-name authenticated
!
!
!
!
!
!
!
!
!
Redundancy
!
!
!
!
!
!
!
!
!
!
!
!
!
!
```

R1

```
interface Ethernet0/0
  description ***Link to ISP***
  ip address 209.165.201.1  255.255.255.224
  ip nat outside
  ip virtual-reassembly in
!
interface Ethernet0/1
  description ***Link to LAN***
  ip address 172.16.16.1  255.255.255.0
  ip nat inside
  ip virtual-reassembly in
!
interface Ethernet0/2
  description ***Link to R2***
  ip address 172.16.14.1  255.255.255.252
  ip nat inside
  ip virtual-reassembly in
!
interface Ethernet0/3
  no ip address
  shutdown
!
router rip
  version 2
  network 172.16.0.0
  default-information originate
  no auto-summary
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
```

R1

```
ip nat inside source list LOCAL interface Ethernet0/0 overload
ip route 10.10.10.0  255.255.255.0  172.16.14.2  200
!
ip access-list standard LOCAL
  permit 10.0.0.0  0.255.255.255
  permit 172.16.0.0  0.0.255.255
  permit 192.168.0.0  0.0.255.255
!
!
!
!
control-plane
!
!
line con 0
  logging synchronous
line aux 0
line vty 0  4
  login
  transport input all
!
!
end
R1#show interfaces
Ethernet0/0 is up, line protocoli s up
  Hardware is AudP2, address is aabb.cc00.4100 (bia aabb.cc00.4100)
  Description: ***Link to ISP***
  Internet address is 209.165.201.1/27
  MTU 1500 bytes, BU 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, txload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
```

R1

```
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:53, output 00:00:07, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (site/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     40 packets input, 11786 bytes, 0 no buffer
     Received 39 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     191 packets output, 20271 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
     4 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up
  Hardware is AudP2, address is aabb.cc00.4110 (bia aabb.cc00.4110)
  Description: ***Link to LAN***
  Internet address is 172.16.16.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
```

R1

```
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     245 packets output, 30725 bytes, 0 underruns
     0 output errors, 0 collisions, 4 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/2 is up, line protocol is up
  Hardware is AudP2, address is aabb.cc00.4120 (bia aabb.cc00.4120)
  Description: ***Link to R2***
  Internet address is 172.16.14.1/30
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:16, output 00:00:07, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     98 packets input, 20097 bytes, 0 no buffer
     Received 97 broadcasts (54 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     247 packets output, 25359 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
     4 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
```

R1

```
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is administratively down, line protocol is down
  Hardware is AudP2, address is aabb.cc00.4130 (bia aabb.cc00.4130)
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     0 packets output, 0 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
NVI0 is up, line protocoli s up
  Hardware is NVI
  Interface is unnumbered. Using address of Ethernet0/0 (209.165.201.1)
  MTU 1514 bytes, BW 56 Kbit/sec, DLY 5000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation UNKNOWN, loopback not set
  Keepalive set (10 sec)
Last input never, output never, output hang never
Last clearing of ''show interface'' counters never
```

R1

```
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
     0 packets output, 0 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     0 unknown protocol drops
     0 output buffer failures, 0 output buffers swapped out
R1#
R1# show ip interface brief
Interface        IP-Address      OK?  Method   Status
Protocol
Ethernet0/0      209.165.201.1   Yes  NVRAM    up                      up
Ethernet0/1      172.16.16.1     Yes  NVRAM    up                      up
Ethernet0/2      172.16.14.1     Yes  NVRAM    up                      up
Ethernet0/3      unassigned      Yes  NVRAM    administratively down   down
NVI0             209.165.201.1   Yes  unset    up                      up
R1#
R1#
R1#show ip route
Codes: L – local, C – connected, S – static, R – RIP, M – mobile, B - BGP
          D – EIGRP, EX – EIGRP external, 0 – OSPF, IA – OSPF inter area
          N1 – OSPF NSSA external type 1, N2 – OSPF NSSA external type 2
          E1 – OSPF external type 1, E2 – OSPF external type 2
          i – IS-IS, su – IS-IS summary, LI – IS-IS level-1, L2 – IS-IS level-2
          ia – IS-IS inter area, * – candidate default, U – per-user static route
          o – ODR, P – periodic downloaded static route, H – NHRP, 1 – LISP
          + - replicated route, % - next hop override

Gateway of last resort is not set

          10.0.0.0/24 is subnetted, 1 subnets
R            10.10.10.0 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
```

R1

```
        172.16.0.0/16 is variably subnetted, 5 subnets, 3 masks
R          172.16.11.0/30 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
C          172.16.14.0/30 is directly connected, Ethernet 0/2
L          172.16.14.1/32 is directly connected, Ethernet 0/2
C          172.16.16.0/24 is directly connected, Ethernet 0/1
L          172.16.16.1/32 is directly connected, Ethernet 0/1
R       192.168.1.0/24 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
R       192.168.100.0/24 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
R       192.168.200.0/24 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
        209.165.201.0/24 is variably subnetted, 2 subnets, 2 masks
C          209.165.201.0/27 is directly connected, Ethernet0/0
L          209.165.201.1/32 is directly connected, Ethernet0/0
R1#
R1#
```

R2

```
R2#show run
R2#show running-config
Building configuration…

Current configuration : 1505 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R2
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
nni polling-interval 60
no nni auto-configure
no nni pvc
nni snmp-timeout 180
!
!
!
!



!
!
!
!
ip cef
no ipv6 cef
!
```

R2

```
multilink bundle-name authenticated
!
!
!
!
!
!
!
!
!
redundancy
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
interface Ethernet0/0
 description ***Link to R3***
 ip address 172.16.11.1  255.255.255.252
!
interface Ethernet0/1
 no ip address
!
interface Ethernet0/1.1
 description ***Link to Management Segment***
 encapsulation dot10 1 native
 ip address 192.168.1.1  255.255.255.0
!
```

R2

```
interface Ethernet0/1.100
  description ***Link to Server1 Segment***
  encapsulation dot10 200
  ip address 192.168.100.1  255.255.255.0
!
interface Ethernet0/1.200
  description ***Link to Server2 Segment***
  encapsulation dot10 100
  ip address 192.168.200.1  255.255.255.0
!
interface Ethernet0/2
  description ***Link to R1***
  ip address 172.16.14.2  255.255.255.252
!
interface Ethernet0/3
  description ***Link to LAN***
  ip address 10.10.10.1  255.255.255.0
!
router rip
  version 2
  network 10.0.0.0
  network 172.16.0.0
  network 192.168.1.0
  network 192.168.100.0
  network 192.168.200.0
  no auto-summry
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
!
!
control-plane
!
!
```

R2

```
!
!
!
!
!
line con 0
  logging synchronous
line aux 0
line vty 0  4
  login
  transport input all
!
!
end
R2#show interfaces
Ethernet0/0 is up, line protocol is up
  Hardware is AudP2, address is aabb.cc00.4200 (bia aabb.cc00.4200)
  Description: ***Link to R3***
  Internet address is 172.16.11.1/30
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:32, output 00:00:08, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     50 packets input, 15683 bytes, 0 no buffer
     Received 50 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     343 packets output, 42566 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
```

R2

```
     2 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:00, output 00:00:08, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 1000 bits/sec, 2 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     4632 packets input, 308536 bytes, 0 no buffer
     Received 4421 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     512 packets output, 73148 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     73 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/1.1 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
  Description: ***Link to Management Segment***
  Internet address is 192.168.1.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation 802.10 Virtual LAN, Vlan ID 1.
  ARP type: ARPA, ARP Timeout 04:00:00
  Keepalive set (10 sec)
```

R2

```
Last clearing of ''show interface'' counters never
Ethernet0/1.100 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
  Description: ***Link to Server Segment***
  Internet address is 192.168.100.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation 802.10 Virtual LAN, Vlan ID 200.
  ARP type: ARPA, ARP Timeout 04:00:00
  Keepalive set (10 sec)
Last clearing of ''show interface'' counters never
Ethernet0/1.200 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
  Description: ***Link to Server2 Segment***
  Internet address is 192.168.200.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation 802.10 Virtual LAN, Vlan ID 100.
  ARP type: ARPA, ARP Timeout 04:00:00
  Keepalive set (10 sec)
Last clearing of ''show interface'' counters never
Ethernet0/2 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4220 (bia aabb.cc00.4220)
  Description: ***Link to R1***
  Internet address is 172.16.14.2/30
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:02, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
```

R2

```
     128 packets input, 21994 bytes, 0 no buffer
     Received 127 broadcasts (77 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     345 packets output, 39952 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4230 (bia aabb.cc00.4230)
  Description: ***Link to LAN***
  Internet address is 10.10.10.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     344 packets output, 42752 bytes, 0 underruns
     0 output errors, 0 collisions, 6 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
```

R2

```
R2#
R2#
R2# show ip interface brief
Interface          IP-Address      OK?  Method   Status     Protocol
Ethernet0/0        172.16.11.1     Yes  NVRAM    up         up
Ethernet0/1        unassigned      Yes  NVRAM    up         up
Ethernet0/1.1      192.168.1.1     Yes  NVRAM    up         up
Ethernet0/1.100    192.168.100.1   Yes  NVRAM    up         up
Ethernet0/1.200    192.168.200.1   Yes  NVRAM    up         up
Ethernet0/2        172.16.14.2     Yes  NVRAM    up         up
Ethernet0/3        10.10.10.1      Yes  NVRAM    up         up

R2#
R2#
R2#show ip route
Codes : L – local, C – connected, S – static, R – RIP, M – mobile, B - BGP
        D – EIGRP, EX – EIGRP external, 0 – OSPF, IA – OSPF inter area
        N1 – OSPF NSSA external type 1, N2 – OSPF NSSA external type 2
        E1 – OSPF external type 1, E2 – OSPF external type 2
        i – IS-IS, su – IS-IS summary, LI – IS-IS level-1, L2 – IS-IS level-2
        ia – IS-IS inter area, * – candidate default, U – per-user static route
        o – ODR, P – periodic downloaded static route, H – NHRP, 1 – LISP
        + - replicated route, % - next hop override

Gateway of last resort is 172.16.14.1 to network 0.0.0.0

R*          0.0.0.0 [120/1] via 172.16.14.1, 00:00:23, Ethernet0/2
        10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C          10.10.10.0/24 is directly connected, Ethernet 0/3
L          10.10.10.1/32 is directly connected, Ethernet 0/3
        172.16.0.0/16 is variably subnetted, 5 subnets, 3 masks
C          172.16.11.0/30 is directly connected, Ethernet 0/0
L          172.16.11.1/32 is directly connected, Ethernet 0/0
C          172.16.14.0/30 is directly connected, Ethernet 0/2
L          172.16.14.2/32 is directly connected, Ethernet 0/2
R          172.16.16.0/24 [120/1] via 172.16.14.1, 00:00:23, Ethernet0/2
        192.168.1.0/24 is variably subnetted, 2 subnets, 3 masks
```

R2

```
C        192.168.1.0/24 is directly connected, Ethernet 0/1.1
L        192.168.1.1/32 is directly connected, Ethernet 0/1.1
       192.168.100.0/24 is variably subnetted, 2 subnets, 3 masks
C        192.168.100.0/24 is directly connected, Ethernet 0/1.100
L        192.168.100.1/32 is directly connected, Ethernet 0/1.100
       192.168.200.0/24 is variably subnetted, 2 subnets, 3 masks
C        192.168.200.0/24 is directly connected, Ethernet 0/1.200
L        192.168.200.1/32 is directly connected, Ethernet 0/1.200
R2#
```

R3

```
R3#show run
R3#show running-config
Building configuration…

Current configuration : 913 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R3
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
nni polling-interval 60
no nni auto-configure
no nni pvc
nni snmp-timeout 180
!
!
!
!



!
!
!
!
ip cef
no ipv6 cef
!
```

R3

```
!
!
!
!
!
!
!
!
redundancy
!
!
!
!
!
!
!
!
!
!
!
!
!
interface Ethernet0/0
  description ***Link to LAN***
  ip address 10.10.12.1  255.255.255.252
!
interface Ethernet0/1
  description ***Link to R2***
  ip address 172.16.11.2  255.255.255.252
!
interface Ethernet0/2
  no ip address
  shutdown
!
interface Ethernet0/3
  no ip address
  shutdown
```

R3

```
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
!
!
!
!
control-plane
!
!
!
!
!
!
!
line con 0
  logging synchronous
line aux 0
line vty 0  4
  login
  transport input all
!
!
end
R3#show interfaces
Ethernet0/0 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4300 (bia aabb.cc00.4300)
  Description: ***Link to LAN***
  Internet address is 10.10.12.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
```

R3

```
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
!
!
!
!
control-plane
!
!
!
!
!
!
!
line con 0
  logging synchronous
line aux 0
line vty 0  4
  login
  transport input all
!
!
end
R3#show interfaces
Ethernet0/0 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4300 (bia aabb.cc00.4300)
  Description: ***Link to LAN***
  Internet address is 10.10.12.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
```

R3

```
Last input never, output never, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     666 packets output, 71699 bytes, 0 underruns
     0 output errors, 0 collisions, 11 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4310 (bia aabb.cc00.4310)
  Description: ***Link to R2***
  Internet address is 172.16.11.2/30
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:21, output 00:00:05, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     316 packets input, 74089 bytes, 0 no buffer
     Received 316 broadcasts (200 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
```

R3

```
     0 input packets with dribble condition detected
     669 packets output, 71888 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/2 is administratively down, line protocol is down
  Hardware is AmdP2, address is aabb.cc00.4320 (bia aabb.cc00.4320)
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     0 packets output, 0 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is administratively down, line protocol is down
  Hardware is AmdP2, address is aabb.cc00.4330 (bia aabb.cc00.4330)
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
```

R3

```
  ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     0 packets output, 0 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
R3#
R3#
R3# show ip interface brief
Interface       IP-Address      OK?   Method      Status
Protocol
Ethernet0/0     10.10.12.1      Yes   NVRAM       up
up
Ethernet0/1     172.16.11.2     Yes   NVRAM       up
up
Ethernet0/2     unassigned      Yes   NVRAM       administratively down
down
Ethernet0/3     unassigned      Yes   NVRAM       administratively down
down
R3#
R3#
R3#show ip route
Codes : L – local, C – connected, S – static, R – RIP, M – mobile, B - BGP
        D – EIGRP, EX – EIGRP external, 0 – OSPF, IA – OSPF inter area
        N1 – OSPF NSSA external type 1, N2 – OSPF NSSA external type 2
```

R3

```
        E1 – OSPF external type 1, E2 – OSPF external type 2
        i – IS-IS, su – IS-IS summary, LI – IS-IS level-1, L2 – IS-IS level-2
        ia – IS-IS inter area, * – candidate default, U – per-user static route
        o – ODR, P – periodic downloaded static route, H – NHRP, 1 – LISP
        + - replicated route, % - next hop override

Gateway of last resort is not set

        10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C          10.10.12.0/24 is directly connected, Ethernet 0/0
L          10.10.12.1/32 is directly connected, Ethernet 0/0
        172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
C          172.16.11.0/30 is directly connected, Ethernet 0/1
L          172.16.11.2/32 is directly connected, Ethernet 0/1
R3#
R3#
R3#
```

L2SW1

```
L2SW1#show run
L2SW1#show running-config
Building configuration…

Current configuration : 1074 bytes
!
version 15.1
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
service compress-config
!
hostname L2SW1
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
!
ip cef
!
interface Vlan1
  ip address 192.168.1.254  255.255.255.0
!
ip default-gateway 192.168.1.1
!
no ip http server
!
!
!
!
!
control-plane
!
!
```

L2SW1

```
line con 0
  logging synchronous
line aux
line vty 0  4
  login
!
End
L2SW1#
L2SW1#
L2SW1#show interfaces
Ethernet0/0 is up, line protocol is up (connected)
!
interface Ethernet0/0
  description ***Link to R2***
  switchport trunk encapsulation dot1q
  switchport mode trunk
  duplex auto
!
interface Ethernet0/1
  description ***Link to Server1 segment***
  switchport access vlan 100
  switchport mode access
  duplex auto
!
interface Ethernet0/2
  description ***Link to Server2 segment***
  switchport access vlan 200
  switchport mode access
  duplex auto
!
interface Ethernet0/3
  duplex auto
!
interface Vlan1
  ip address 192.168.1.254  255.255.255.0
!
L2SW1#show interfaces
Ethernet0/0 is up, line protocol is up (connected)
```

L2SW1

```
  Hardware is AmdP2, address is aabb.cc00.4500 (bia aabb.cc00.4500)
  Description: ***Link to R2***
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Auto-duplex, Auto-speed, media type is unknown
  input flow-control is off, output flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:07, output 00:00:00, output hang never
  Last clearing of ''show interface'' counters never
  Input queue: 12/2000/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/00 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 2 packets/sec
     1447 packets input, 208877 bytes, 0 no buffer
     Received 139 broadcasts (0 multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     13457 packets output, 919293 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up (connected)
  Hardware is AmdP2, address is aabb.cc00.4510 (bia aabb.cc00.4510)
  Description: ***Link to Sercer1 segment***
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Auto-duplex, Auto-speed, media type is unknown
  input flow-control is off, output flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:07, output 00:00:01, output hang never
```

L2SW1

```
Last clearing of ''show interface'' counters never
Input queue: 5/2000/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/0 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     755 packets input, 80219 bytes, 0 no buffer
     Received 123 broadcasts (0 multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     3867 packets output, 268544 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/2 is up, line protocol is up (connected)
  Hardware is AmdP2, address is aabb.cc00.4520 (bia aabb.cc00.4520)
  Description: ***Link to Sercer2 segment***
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Auto-duplex, Auto-speed, media type is unknown
  input flow-control is off, output flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:07, output 00:00:01, output hang never
Last clearing of ''show interface'' counters never
Input queue: 5/2000/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/0 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     758 packets input, 81010 bytes, 0 no buffer
     Received 125 broadcasts (0  multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
```

L2SW1

```
     0 input packets with dribble condition detected
     3867 packets output, 268544 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is up, line protocol is up (connected)
  Hardware is AmdP2, address is aabb.cc00.4530 (bia aabb.cc00.4530)
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Auto-duplex, Auto-speed, media type is unknown
  input flow-control is off, output flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input never, output never, output hang never
  Last clearing of ''show interface'' counters never
  Input queue: 0/2000/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/0 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     3566 packets output, 252186 bytes, 0 underruns
     0 output errors, 0 collisions, 55 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Vlan1 is up, line protocol is up
  Hardware is Ethernet SVI, address is aabb.cc80.4500 (bia aabb.cc80.4500)
  Internet address is 192.168.1.254/24
```

L2SW1

```
  MTU 1500 bytes, BW 1000000 Kbit/sec, DLY 10 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive not supported
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:12, output never, output hang never
  Last clearing of ''show interface'' counters never
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/40 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     235 packets input, 42480 bytes, 0 no buffer
     Received 235 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     11 packets output, 830 bytes, 0 underruns
     0 output errors, 0 interface resets
     0 unknown protocol drops
     0 output buffer failures, 0 output buffers swapped out
L2SW1#
L2SW1#
L2SW1# show ip interface brief
Interface       IP-Address       OK?   Method   Status      Protocol
Ethernet0/0     unassigned       Yes   unset    up          up
Ethernet0/1     unassigned       Yes   unset    up          up
Ethernet0/2     unassigned       Yes   unset    up          up
Ethernet0/3     unassigned       Yes   unset    up          up
Vlan1           192.168.1.254    Yes   NVRAM    up          up
L2SW1#
L2SW1#
L2SW1#show ip route
Codes : L – local, C – connected, S – static, R – RIP, M – mobile, B - BGP
        D – EIGRP, EX – EIGRP external, 0 – OSPF, IA – OSPF inter area
        N1 – OSPF NSSA external type 1, N2 – OSPF NSSA external type 2
        E1 – OSPF external type 1, E2 – OSPF external type 2
        i – IS-IS, su – IS-IS summary, LI – IS-IS level-1, L2 – IS-IS level-2
        ia – IS-IS inter area, * – candidate default, U – per-user static route
```

L2SW1

```
        o – ODR, P – periodic downloaded static route, H – NHRP, l – LISP
        + - replicated route, % - next hop override

Gateway of last resort is not set


        192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C          192.168.1.0/24 is directly connected, Vlan1
L          192.168.1.254/32 is directly connected, Vlan1
L2SW1#
L2SW1#
L2SW1#
```

Server1 and Server2 are unable to communicate with the rest of the network.
Your initial check with system administrators shows that IP address settings are correctly configured on the server side.
What could be an issue?

A. The VLAN encapsulation is misconfigured on the router subinterfaces.
B. The Router is missing subinterface configuration.
C. The Trunk is not configured on the L2SW1 switch.
D. The IP address is misconfigured on the primary router interface.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Check the configuration of the interface that is connected to Server1 and Server2 on R2 with “show running-config” command.

```
R2#show running-config

<output omitted>
interface Ethernet0/1.100
 description Link to Server1 Segment
 encapsulation dot1Q 200
 ip address 192.168.100.1 255.255.255.0
!
interface Ethernet0/1.200
 description Link to Server2 Segment
 encapsulation dot1Q 100
 ip address 192.168.200.1 255.255.255.0
!
```

We see that subinterface E0/1.100 has been configured with VLAN 200 (via “encapsulation dot1Q 200” command) while Server1 belongs to VLAN 100. Therefore this configuration is not correct. It should be “encapsulation dot1Q 100” instead. The same thing for interface E0/1.200, it should be “encapsulation dot1Q 200” instead.

QUESTION 338

You work for a company that provides managed network services, and of your real estate clients running a small office is experiencing network issues, Troubleshoot the network issues.

Router R1 connects the main office to internet, and routers R2 and R3 are internal routers NAT is enabled on Router R1.
The routing protocol that is enable between routers R1, R2, and R3 is RIPv2.
R1 sends default route into RIPv2 for internal routers to forward internet traffic to R1.

Server1 and Server2 are placed in VLAN 100 and 200 respectively, and dare still running router on stick configuration with router R2.
You have console access on R1, R2, R3, and L2SW1 devices.
Use only show commands to troubleshoot the issues.

Instructions
Enter IOS commands on the device to verify network operation and answer the multiple-choice questions.
This task does not require device configuration.
Click the device icon to gain access to the console of the device. No console or enable passwords are required.
To access the multiple-choice questions, click the numbered boxes on the left of the top panel.
There are four multiple-choice questions with this task. Be sure to answer all four questions before clicking Next.

Topology
Internet
Main office
ISP
209.165.201.2/27
209.165.201.1/27
Server1 - 192.168.100.250/24
R1
172.16.16.0/24
RIPv2
VLAN 100
172.16.14.0/30
Router on a Stick
L2SW1
R2
R3
10.10.12.0/24
172.16.11.0/30
VLAN 200
10.10.10.0/24
Server2 - 192.168.200.250/24

R1

```
R1#show r
R1#show run
R1#show running-config
Building configuration…

Current configuration : 1438 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R1
!
Boot-start-marker
Boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
nni polling-interval 60
no nni auto-configure
no nni pvc
nni snmp-timeout 180
!
!
!
!
```

R1

```
!
!
!
!
ip cef
no ipv6 cef
!
multilink bundle-name authenticated
!
!
!
!
!
!
!
!
!
Redundancy
!
!
!
!
!
!
!
!
!
!
!
!
!
!
```

R1

```
interface Ethernet0/0
  description ***Link to ISP***
  ip address 209.165.201.1  255.255.255.224
  ip nat outside
  ip virtual-reassembly in
!
interface Ethernet0/1
  description ***Link to LAN***
  ip address 172.16.16.1  255.255.255.0
  ip nat inside
  ip virtual-reassembly in
!
interface Ethernet0/2
  description ***Link to R2***
  ip address 172.16.14.1  255.255.255.252
  ip nat inside
  ip virtual-reassembly in
!
interface Ethernet0/3
  no ip address
  shutdown
!
router rip
  version 2
  network 172.16.0.0
  default-information originate
  no auto-summary
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
```

R1

```
ip nat inside source list LOCAL interface Ethernet0/0 overload
ip route 10.10.10.0  255.255.255.0  172.16.14.2  200
!
ip access-list standard LOCAL
  permit 10.0.0.0  0.255.255.255
  permit 172.16.0.0  0.0.255.255
  permit 192.168.0.0  0.0.255.255
!
!
!
!
control-plane
!
!
line con 0
  logging synchronous
line aux 0
line vty 0  4
  login
  transport input all
!
!
end
R1#show interfaces
Ethernet0/0 is up, line protocoli s up
  Hardware is AudP2, address is aabb.cc00.4100 (bia aabb.cc00.4100)
  Description: ***Link to ISP***
  Internet address is 209.165.201.1/27
  MTU 1500 bytes, BU 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, txload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
```

R1

```
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:53, output 00:00:07, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (site/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     40 packets input, 11786 bytes, 0 no buffer
     Received 39 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     191 packets output, 20271 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
     4 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up
  Hardware is AudP2, address is aabb.cc00.4110 (bia aabb.cc00.4110)
  Description: ***Link to LAN***
  Internet address is 172.16.16.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
```

R1

```
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     245 packets output, 30725 bytes, 0 underruns
     0 output errors, 0 collisions, 4 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/2 is up, line protocol is up
  Hardware is AudP2, address is aabb.cc00.4120 (bia aabb.cc00.4120)
  Description: ***Link to R2***
  Internet address is 172.16.14.1/30
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:16, output 00:00:07, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     98 packets input, 20097 bytes, 0 no buffer
     Received 97 broadcasts (54 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     247 packets output, 25359 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
     4 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
```

R1

```
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is administratively down, line protocol is down
  Hardware is AudP2, address is aabb.cc00.4130 (bia aabb.cc00.4130)
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     0 packets output, 0 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
NVI0 is up, line protocoli s up
  Hardware is NVI
  Interface is unnumbered. Using address of Ethernet0/0 (209.165.201.1)
  MTU 1514 bytes, BW 56 Kbit/sec, DLY 5000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation UNKNOWN, loopback not set
  Keepalive set (10 sec)
Last input never, output never, output hang never
Last clearing of ''show interface'' counters never
```

R1

```
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
     0 packets output, 0 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     0 unknown protocol drops
     0 output buffer failures, 0 output buffers swapped out
R1#
R1# show ip interface brief
Interface        IP-Address      OK?  Method   Status
Protocol
Ethernet0/0      209.165.201.1   Yes  NVRAM    up                      up
Ethernet0/1      172.16.16.1     Yes  NVRAM    up                      up
Ethernet0/2      172.16.14.1     Yes  NVRAM    up                      up
Ethernet0/3      unassigned      Yes  NVRAM    administratively down   down
NVI0             209.165.201.1   Yes  unset    up                      up
R1#
R1#
R1#show ip route
Codes: L – local, C – connected, S – static, R – RIP, M – mobile, B - BGP
          D – EIGRP, EX – EIGRP external, 0 – OSPF, IA – OSPF inter area
          N1 – OSPF NSSA external type 1, N2 – OSPF NSSA external type 2
          E1 – OSPF external type 1, E2 – OSPF external type 2
          i – IS-IS, su – IS-IS summary, LI – IS-IS level-1, L2 – IS-IS level-2
          ia – IS-IS inter area, * – candidate default, U – per-user static route
          o – ODR, P – periodic downloaded static route, H – NHRP, 1 – LISP
          + - replicated route, % - next hop override

Gateway of last resort is not set

          10.0.0.0/24 is subnetted, 1 subnets
R            10.10.10.0 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
```

R1

```
        172.16.0.0/16 is variably subnetted, 5 subnets, 3 masks
R          172.16.11.0/30 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
C          172.16.14.0/30 is directly connected, Ethernet 0/2
L          172.16.14.1/32 is directly connected, Ethernet 0/2
C          172.16.16.0/24 is directly connected, Ethernet 0/1
L          172.16.16.1/32 is directly connected, Ethernet 0/1
R       192.168.1.0/24 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
R       192.168.100.0/24 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
R       192.168.200.0/24 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
        209.165.201.0/24 is variably subnetted, 2 subnets, 2 masks
C          209.165.201.0/27 is directly connected, Ethernet0/0
L          209.165.201.1/32 is directly connected, Ethernet0/0
R1#
R1#
```

R2

```
R2#show run
R2#show running-config
Building configuration…

Current configuration : 1505 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R2
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
nni polling-interval 60
no nni auto-configure
no nni pvc
nni snmp-timeout 180
!
!
!
!



!
!
!
!
ip cef
no ipv6 cef
!
```

R2

```
multilink bundle-name authenticated
!
!
!
!
!
!
!
!
!
redundancy
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
interface Ethernet0/0
 description ***Link to R3***
 ip address 172.16.11.1  255.255.255.252
!
interface Ethernet0/1
 no ip address
!
interface Ethernet0/1.1
 description ***Link to Management Segment***
 encapsulation dot10 1 native
 ip address 192.168.1.1  255.255.255.0
!
```

R2

```
interface Ethernet0/1.100
  description ***Link to Server1 Segment***
  encapsulation dot10 200
  ip address 192.168.100.1  255.255.255.0
!
interface Ethernet0/1.200
  description ***Link to Server2 Segment***
  encapsulation dot10 100
  ip address 192.168.200.1  255.255.255.0
!
interface Ethernet0/2
  description ***Link to R1***
  ip address 172.16.14.2  255.255.255.252
!
interface Ethernet0/3
  description ***Link to LAN***
  ip address 10.10.10.1  255.255.255.0
!
router rip
  version 2
  network 10.0.0.0
  network 172.16.0.0
  network 192.168.1.0
  network 192.168.100.0
  network 192.168.200.0
  no auto-summry
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
!
!
control-plane
!
!
```

R2

```
!
!
!
!
!
line con 0
  logging synchronous
line aux 0
line vty 0  4
  login
  transport input all
!
!
end
R2#show interfaces
Ethernet0/0 is up, line protocol is up
  Hardware is AudP2, address is aabb.cc00.4200 (bia aabb.cc00.4200)
  Description: ***Link to R3***
  Internet address is 172.16.11.1/30
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:32, output 00:00:08, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     50 packets input, 15683 bytes, 0 no buffer
     Received 50 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     343 packets output, 42566 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
```

R2

```
     2 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:00, output 00:00:08, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 1000 bits/sec, 2 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     4632 packets input, 308536 bytes, 0 no buffer
     Received 4421 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     512 packets output, 73148 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     73 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/1.1 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
  Description: ***Link to Management Segment***
  Internet address is 192.168.1.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation 802.10 Virtual LAN, Vlan ID 1.
  ARP type: ARPA, ARP Timeout 04:00:00
  Keepalive set (10 sec)
```

R2

```
Last clearing of ''show interface'' counters never
Ethernet0/1.100 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
  Description: ***Link to Server Segment***
  Internet address is 192.168.100.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation 802.10 Virtual LAN, Vlan ID 200.
  ARP type: ARPA, ARP Timeout 04:00:00
  Keepalive set (10 sec)
Last clearing of ''show interface'' counters never
Ethernet0/1.200 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
  Description: ***Link to Server2 Segment***
  Internet address is 192.168.200.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation 802.10 Virtual LAN, Vlan ID 100.
  ARP type: ARPA, ARP Timeout 04:00:00
  Keepalive set (10 sec)
Last clearing of ''show interface'' counters never
Ethernet0/2 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4220 (bia aabb.cc00.4220)
  Description: ***Link to R1***
  Internet address is 172.16.14.2/30
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:02, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
```

R2

```
     128 packets input, 21994 bytes, 0 no buffer
     Received 127 broadcasts (77 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     345 packets output, 39952 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4230 (bia aabb.cc00.4230)
  Description: ***Link to LAN***
  Internet address is 10.10.10.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     344 packets output, 42752 bytes, 0 underruns
     0 output errors, 0 collisions, 6 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
```

R2

```
R2#
R2#
R2# show ip interface brief
Interface          IP-Address      OK?  Method   Status     Protocol
Ethernet0/0        172.16.11.1     Yes  NVRAM    up         up
Ethernet0/1        unassigned      Yes  NVRAM    up         up
Ethernet0/1.1      192.168.1.1     Yes  NVRAM    up         up
Ethernet0/1.100    192.168.100.1   Yes  NVRAM    up         up
Ethernet0/1.200    192.168.200.1   Yes  NVRAM    up         up
Ethernet0/2        172.16.14.2     Yes  NVRAM    up         up
Ethernet0/3        10.10.10.1      Yes  NVRAM    up         up

R2#
R2#
R2#show ip route
Codes : L – local, C – connected, S – static, R – RIP, M – mobile, B - BGP
        D – EIGRP, EX – EIGRP external, 0 – OSPF, IA – OSPF inter area
        N1 – OSPF NSSA external type 1, N2 – OSPF NSSA external type 2
        E1 – OSPF external type 1, E2 – OSPF external type 2
        i – IS-IS, su – IS-IS summary, LI – IS-IS level-1, L2 – IS-IS level-2
        ia – IS-IS inter area, * – candidate default, U – per-user static route
        o – ODR, P – periodic downloaded static route, H – NHRP, 1 – LISP
        + - replicated route, % - next hop override

Gateway of last resort is 172.16.14.1 to network 0.0.0.0

R*        0.0.0.0 [120/1] via 172.16.14.1, 00:00:23, Ethernet0/2
        10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C         10.10.10.0/24 is directly connected, Ethernet 0/3
L         10.10.10.1/32 is directly connected, Ethernet 0/3
        172.16.0.0/16 is variably subnetted, 5 subnets, 3 masks
C         172.16.11.0/30 is directly connected, Ethernet 0/0
L         172.16.11.1/32 is directly connected, Ethernet 0/0
C         172.16.14.0/30 is directly connected, Ethernet 0/2
L         172.16.14.2/32 is directly connected, Ethernet 0/2
R         172.16.16.0/24 [120/1] via 172.16.14.1, 00:00:23, Ethernet0/2
        192.168.1.0/24 is variably subnetted, 2 subnets, 3 masks
```

R2

```
C         192.168.1.0/24 is directly connected, Ethernet 0/1.1
L         192.168.1.1/32 is directly connected, Ethernet 0/1.1
        192.168.100.0/24 is variably subnetted, 2 subnets, 3 masks
C         192.168.100.0/24 is directly connected, Ethernet 0/1.100
L         192.168.100.1/32 is directly connected, Ethernet 0/1.100
        192.168.200.0/24 is variably subnetted, 2 subnets, 3 masks
C         192.168.200.0/24 is directly connected, Ethernet 0/1.200
L         192.168.200.1/32 is directly connected, Ethernet 0/1.200
R2#
```

R3

```
R3#show run
R3#show running-config
Building configuration…

Current configuration : 913 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R3
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
nni polling-interval 60
no nni auto-configure
no nni pvc
nni snmp-timeout 180
!
!
!
!



!
!
!
!
ip cef
no ipv6 cef
!
```

R3

```
!
!
!
!
!
!
!
!
redundancy
!
!
!
!
!
!
!
!
!
!
!
!
!
interface Ethernet0/0
  description ***Link to LAN***
  ip address 10.10.12.1  255.255.255.252
!
interface Ethernet0/1
  description ***Link to R2***
  ip address 172.16.11.2  255.255.255.252
!
interface Ethernet0/2
  no ip address
  shutdown
!
interface Ethernet0/3
  no ip address
  shutdown
```

R3

```
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
!
!
!
!
control-plane
!
!
!
!
!
!
!
line con 0
  logging synchronous
line aux 0
line vty 0  4
  login
  transport input all
!
!
end
R3#show interfaces
Ethernet0/0 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4300 (bia aabb.cc00.4300)
  Description: ***Link to LAN***
  Internet address is 10.10.12.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
```

R3

```
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
!
!
!
!
control-plane
!
!
!
!
!
!
!
line con 0
  logging synchronous
line aux 0
line vty 0  4
  login
  transport input all
!
!
end
R3#show interfaces
Ethernet0/0 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4300 (bia aabb.cc00.4300)
  Description: ***Link to LAN***
  Internet address is 10.10.12.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
```

R3

```
Last input never, output never, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     666 packets output, 71699 bytes, 0 underruns
     0 output errors, 0 collisions, 11 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4310 (bia aabb.cc00.4310)
  Description: ***Link to R2***
  Internet address is 172.16.11.2/30
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:21, output 00:00:05, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     316 packets input, 74089 bytes, 0 no buffer
     Received 316 broadcasts (200 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
```

R3

```
     0 input packets with dribble condition detected
     669 packets output, 71888 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/2 is administratively down, line protocol is down
  Hardware is AmdP2, address is aabb.cc00.4320 (bia aabb.cc00.4320)
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     0 packets output, 0 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is administratively down, line protocol is down
  Hardware is AmdP2, address is aabb.cc00.4330 (bia aabb.cc00.4330)
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
```

R3

```
  ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     0 packets output, 0 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
R3#
R3#
R3# show ip interface brief
Interface       IP-Address      OK?   Method      Status
Protocol
Ethernet0/0     10.10.12.1      Yes   NVRAM       up
up
Ethernet0/1     172.16.11.2     Yes   NVRAM       up
up
Ethernet0/2     unassigned      Yes   NVRAM       administratively down
down
Ethernet0/3     unassigned      Yes   NVRAM       administratively down
down
R3#
R3#
R3#show ip route
Codes : L – local, C – connected, S – static, R – RIP, M – mobile, B - BGP
        D – EIGRP, EX – EIGRP external, 0 – OSPF, IA – OSPF inter area
        N1 – OSPF NSSA external type 1, N2 – OSPF NSSA external type 2
```

R3

```
        E1 – OSPF external type 1, E2 – OSPF external type 2
        i – IS-IS, su – IS-IS summary, LI – IS-IS level-1, L2 – IS-IS level-2
        ia – IS-IS inter area, * – candidate default, U – per-user static route
        o – ODR, P – periodic downloaded static route, H – NHRP, 1 – LISP
        + - replicated route, % - next hop override

Gateway of last resort is not set

        10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C          10.10.12.0/24 is directly connected, Ethernet 0/0
L          10.10.12.1/32 is directly connected, Ethernet 0/0
        172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
C          172.16.11.0/30 is directly connected, Ethernet 0/1
L          172.16.11.2/32 is directly connected, Ethernet 0/1
R3#
R3#
R3#
```

L2SW1

```
L2SW1#show run
L2SW1#show running-config
Building configuration…

Current configuration : 1074 bytes
!
version 15.1
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
service compress-config
!
hostname L2SW1
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
!
ip cef
!
interface Vlan1
  ip address 192.168.1.254  255.255.255.0
!
ip default-gateway 192.168.1.1
!
no ip http server
!
!
!
!
!
control-plane
!
!
```

L2SW1

```
line con 0
  logging synchronous
line aux
line vty 0  4
  login
!
End
L2SW1#
L2SW1#
L2SW1#show interfaces
Ethernet0/0 is up, line protocol is up (connected)
!
interface Ethernet0/0
  description ***Link to R2***
  switchport trunk encapsulation dot1q
  switchport mode trunk
  duplex auto
!
interface Ethernet0/1
  description ***Link to Server1 segment***
  switchport access vlan 100
  switchport mode access
  duplex auto
!
interface Ethernet0/2
  description ***Link to Server2 segment***
  switchport access vlan 200
  switchport mode access
  duplex auto
!
interface Ethernet0/3
  duplex auto
!
interface Vlan1
  ip address 192.168.1.254  255.255.255.0
!
L2SW1#show interfaces
Ethernet0/0 is up, line protocol is up (connected)
```

L2SW1

```
  Hardware is AmdP2, address is aabb.cc00.4500 (bia aabb.cc00.4500)
  Description: ***Link to R2***
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Auto-duplex, Auto-speed, media type is unknown
  input flow-control is off, output flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:07, output 00:00:00, output hang never
  Last clearing of ''show interface'' counters never
  Input queue: 12/2000/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/00 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 2 packets/sec
     1447 packets input, 208877 bytes, 0 no buffer
     Received 139 broadcasts (0 multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     13457 packets output, 919293 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up (connected)
  Hardware is AmdP2, address is aabb.cc00.4510 (bia aabb.cc00.4510)
  Description: ***Link to Sercer1 segment***
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Auto-duplex, Auto-speed, media type is unknown
  input flow-control is off, output flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:07, output 00:00:01, output hang never
```

L2SW1

```
Last clearing of ''show interface'' counters never
Input queue: 5/2000/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/0 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     755 packets input, 80219 bytes, 0 no buffer
     Received 123 broadcasts (0 multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     3867 packets output, 268544 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/2 is up, line protocol is up (connected)
  Hardware is AmdP2, address is aabb.cc00.4520 (bia aabb.cc00.4520)
  Description: ***Link to Sercer2 segment***
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Auto-duplex, Auto-speed, media type is unknown
  input flow-control is off, output flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:07, output 00:00:01, output hang never
Last clearing of ''show interface'' counters never
Input queue: 5/2000/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/0 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     758 packets input, 81010 bytes, 0 no buffer
     Received 125 broadcasts (0  multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
```

L2SW1

```
     0 input packets with dribble condition detected
     3867 packets output, 268544 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is up, line protocol is up (connected)
  Hardware is AmdP2, address is aabb.cc00.4530 (bia aabb.cc00.4530)
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Auto-duplex, Auto-speed, media type is unknown
  input flow-control is off, output flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input never, output never, output hang never
  Last clearing of ''show interface'' counters never
  Input queue: 0/2000/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/0 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     3566 packets output, 252186 bytes, 0 underruns
     0 output errors, 0 collisions, 55 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Vlan1 is up, line protocol is up
  Hardware is Ethernet SVI, address is aabb.cc80.4500 (bia aabb.cc80.4500)
  Internet address is 192.168.1.254/24
```

L2SW1

```
  MTU 1500 bytes, BW 1000000 Kbit/sec, DLY 10 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive not supported
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:12, output never, output hang never
  Last clearing of ''show interface'' counters never
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/40 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     235 packets input, 42480 bytes, 0 no buffer
     Received 235 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     11 packets output, 830 bytes, 0 underruns
     0 output errors, 0 interface resets
     0 unknown protocol drops
     0 output buffer failures, 0 output buffers swapped out
L2SW1#
L2SW1#
L2SW1# show ip interface brief
Interface       IP-Address       OK?   Method   Status      Protocol
Ethernet0/0     unassigned       Yes   unset    up          up
Ethernet0/1     unassigned       Yes   unset    up          up
Ethernet0/2     unassigned       Yes   unset    up          up
Ethernet0/3     unassigned       Yes   unset    up          up
Vlan1           192.168.1.254    Yes   NVRAM    up          up
L2SW1#
L2SW1#
L2SW1#show ip route
Codes : L – local, C – connected, S – static, R – RIP, M – mobile, B - BGP
        D – EIGRP, EX – EIGRP external, 0 – OSPF, IA – OSPF inter area
        N1 – OSPF NSSA external type 1, N2 – OSPF NSSA external type 2
        E1 – OSPF external type 1, E2 – OSPF external type 2
        i – IS-IS, su – IS-IS summary, LI – IS-IS level-1, L2 – IS-IS level-2
        ia – IS-IS inter area, * – candidate default, U – per-user static route
```

L2SW1

```
        o – ODR, P – periodic downloaded static route, H – NHRP, l – LISP
        + - replicated route, % - next hop override

Gateway of last resort is not set


        192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C          192.168.1.0/24 is directly connected, Vlan1
L          192.168.1.254/32 is directly connected, Vlan1
L2SW1#
L2SW1#
L2SW1#
```

Users in the main office complain that they are unable to reach internet sites.
You observe that internet traffic that is destined towards ISP router is not forwarded correctly on Router R1.

What could be an issue? Ping to Internet server shows the following results from R1:

```
R1#ping 209.165.200.225
Type escape sequence to abort.
Sending 5, 100-byte ICMP Echos to 209.165.200.225, timeout is 2 seconds:
.....
Success rate is 0 percent (0/5)
```

A. The next hop router address for the default route is incorrectly configured.
B. Default route pointing to ISP router is not configured on Router R1.
C. Default route pointing to ISP router is configured with AD of 225.
D. Router R1 configured as DHCP client is not receiving default route via DHCP from ISP router.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
When all the users cannot reach internet sites we should check on the router connecting to the ISP to see if it has a default route pointing to the ISP or not. Use the “show ip route” command on R1:

```
R1#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B -
BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS
level-2
       ia - IS-IS inter area, * - candidate default, U - per-user
static route
       o - ODR, P - periodic downloaded static route, H - NHRP, l -
LISP
       a - application route
       + - replicated route, % - next hop override

Gateway of last resort is not set

      10.0.0.0/24 is subnetted, 1 subnets
R        10.10.10.0 [120/1] via 172.16.14.2, 00:00:06, Ethernet0/2
      172.16.0.0/16 is variably subnetted, 5 subnets, 3 masks
R        172.16.11.0/30 [120/1] via 172.16.14.2, 00:00:14, Ethernet0/2
C        172.16.14.0/30 is directly connected, Ethernet0/2
L        172.16.14.1/32 is directly connected, Ethernet0/2
C        172.16.16.0/24 is directly connected, Ethernet0/1
L        172.16.16.1/32 is directly connected, Ethernet0/1
R     192.168.100.0/24 [120/1] via 172.16.14.2, 00:00:14, Ethernet0/2
R     192.168.200.0/24 [120/1] via 172.16.14.2, 00:00:14, Ethernet0/2
      209.165.201.0/24 is variably subnetted, 2 subnets, 2 masks
C        209.165.201.0/27 is directly connected, Ethernet0/0
L        209.165.201.1/32 is directly connected, Ethernet0/0
```

We cannot find a default route on R1 (something like this: S* 0.0.0.0/0 [1/0] via 209.165.201.2) so maybe R1 was not configured with a default route. We can check with the “show running-config” on R1:

```
R1#show running-config
<output omitted>
ip route 10.10.10.0 255.255.255.0 172.16.14.2 200
<output omitted>
```

We need a default route (like “ip route 0.0.0.0 0.0.0.0 209.165.201.2”) but we cannot find here so we can conclude R1 was not be configured with a default route pointing to the ISP router.

QUESTION 339
You work for a company that provides managed network services, and of your real estate clients running a small office is experiencing network issues, Troubleshoot the network issues.

Router R1 connects the main office to internet, and routers R2 and R3 are internal routers NAT is enabled on Router R1.
The routing protocol that is enable between routers R1, R2, and R3 is RIPv2.
R1 sends default route into RIPv2 for internal routers to forward internet traffic to R1.

Server1 and Server2 are placed in VLAN 100 and 200 respectively, and dare still running router on stick configuration with router R2.
You have console access on R1, R2, R3, and L2SW1 devices.
Use only show commands to troubleshoot the issues.

Instructions
Enter IOS commands on the device to verify network operation and answer the multiple-choice questions.
This task does not require device configuration.
Click the device icon to gain access to the console of the device. No console or enable passwords are required.
To access the multiple-choice questions, click the numbered boxes on the left of the top panel.
There are four multiple-choice questions with this task. Be sure to answer all four questions before clicking Next.

R1

```
R1#show r
R1#show run
R1#show running-config
Building configuration…

Current configuration : 1438 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R1
!
Boot-start-marker
Boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
nni polling-interval 60
no nni auto-configure
no nni pvc
nni snmp-timeout 180
!
!
!
!
```

R1

```
!
!
!
!
ip cef
no ipv6 cef
!
multilink bundle-name authenticated
!
!
!
!
!
!
!
!
!
Redundancy
!
!
!
!
!
!
!
!
!
!
!
!
!
!
```

R1

```
interface Ethernet0/0
  description ***Link to ISP***
  ip address 209.165.201.1  255.255.255.224
  ip nat outside
  ip virtual-reassembly in
!
interface Ethernet0/1
  description ***Link to LAN***
  ip address 172.16.16.1  255.255.255.0
  ip nat inside
  ip virtual-reassembly in
!
interface Ethernet0/2
  description ***Link to R2***
  ip address 172.16.14.1  255.255.255.252
  ip nat inside
  ip virtual-reassembly in
!
interface Ethernet0/3
  no ip address
  shutdown
!
router rip
  version 2
  network 172.16.0.0
  default-information originate
  no auto-summary
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
```

R1

```
ip nat inside source list LOCAL interface Ethernet0/0 overload
ip route 10.10.10.0  255.255.255.0  172.16.14.2  200
!
ip access-list standard LOCAL
  permit 10.0.0.0  0.255.255.255
  permit 172.16.0.0  0.0.255.255
  permit 192.168.0.0  0.0.255.255
!
!
!
!
control-plane
!
!
line con 0
  logging synchronous
line aux 0
line vty 0  4
  login
  transport input all
!
!
end
R1#show interfaces
Ethernet0/0 is up, line protocoli s up
  Hardware is AudP2, address is aabb.cc00.4100 (bia aabb.cc00.4100)
  Description: ***Link to ISP***
  Internet address is 209.165.201.1/27
  MTU 1500 bytes, BU 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, txload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
```

R1

```
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:53, output 00:00:07, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (site/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     40 packets input, 11786 bytes, 0 no buffer
     Received 39 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     191 packets output, 20271 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
     4 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up
  Hardware is AudP2, address is aabb.cc00.4110 (bia aabb.cc00.4110)
  Description: ***Link to LAN***
  Internet address is 172.16.16.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
```

R1

```
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     245 packets output, 30725 bytes, 0 underruns
     0 output errors, 0 collisions, 4 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/2 is up, line protocol is up
  Hardware is AudP2, address is aabb.cc00.4120 (bia aabb.cc00.4120)
  Description: ***Link to R2***
  Internet address is 172.16.14.1/30
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:16, output 00:00:07, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     98 packets input, 20097 bytes, 0 no buffer
     Received 97 broadcasts (54 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     247 packets output, 25359 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
     4 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
```

R1

```
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is administratively down, line protocol is down
  Hardware is AudP2, address is aabb.cc00.4130 (bia aabb.cc00.4130)
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     0 packets output, 0 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
NVI0 is up, line protocoli s up
  Hardware is NVI
  Interface is unnumbered. Using address of Ethernet0/0 (209.165.201.1)
  MTU 1514 bytes, BW 56 Kbit/sec, DLY 5000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation UNKNOWN, loopback not set
  Keepalive set (10 sec)
Last input never, output never, output hang never
Last clearing of ''show interface'' counters never
```

R1

```
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
     0 packets output, 0 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     0 unknown protocol drops
     0 output buffer failures, 0 output buffers swapped out
R1#
R1# show ip interface brief
Interface        IP-Address      OK?  Method   Status
Protocol
Ethernet0/0      209.165.201.1   Yes  NVRAM    up                      up
Ethernet0/1      172.16.16.1     Yes  NVRAM    up                      up
Ethernet0/2      172.16.14.1     Yes  NVRAM    up                      up
Ethernet0/3      unassigned      Yes  NVRAM    administratively down   down
NVI0             209.165.201.1   Yes  unset    up                      up
R1#
R1#
R1#show ip route
Codes: L – local, C – connected, S – static, R – RIP, M – mobile, B - BGP
          D – EIGRP, EX – EIGRP external, 0 – OSPF, IA – OSPF inter area
          N1 – OSPF NSSA external type 1, N2 – OSPF NSSA external type 2
          E1 – OSPF external type 1, E2 – OSPF external type 2
          i – IS-IS, su – IS-IS summary, LI – IS-IS level-1, L2 – IS-IS level-2
          ia – IS-IS inter area, * – candidate default, U – per-user static route
          o – ODR, P – periodic downloaded static route, H – NHRP, 1 – LISP
          + - replicated route, % - next hop override

Gateway of last resort is not set

          10.0.0.0/24 is subnetted, 1 subnets
R            10.10.10.0 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
```

R1

```
        172.16.0.0/16 is variably subnetted, 5 subnets, 3 masks
R          172.16.11.0/30 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
C          172.16.14.0/30 is directly connected, Ethernet 0/2
L          172.16.14.1/32 is directly connected, Ethernet 0/2
C          172.16.16.0/24 is directly connected, Ethernet 0/1
L          172.16.16.1/32 is directly connected, Ethernet 0/1
R       192.168.1.0/24 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
R       192.168.100.0/24 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
R       192.168.200.0/24 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
        209.165.201.0/24 is variably subnetted, 2 subnets, 2 masks
C          209.165.201.0/27 is directly connected, Ethernet0/0
L          209.165.201.1/32 is directly connected, Ethernet0/0
R1#
R1#
```

R2

```
R2#show run
R2#show running-config
Building configuration…

Current configuration : 1505 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R2
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
nni polling-interval 60
no nni auto-configure
no nni pvc
nni snmp-timeout 180
!
!
!
!



!
!
!
!
ip cef
no ipv6 cef
!
```

R2

```
multilink bundle-name authenticated
!
!
!
!
!
!
!
!
!
redundancy
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
interface Ethernet0/0
 description ***Link to R3***
 ip address 172.16.11.1  255.255.255.252
!
interface Ethernet0/1
 no ip address
!
interface Ethernet0/1.1
 description ***Link to Management Segment***
 encapsulation dot10 1 native
 ip address 192.168.1.1  255.255.255.0
!
```

R2

```
interface Ethernet0/1.100
  description ***Link to Server1 Segment***
  encapsulation dot10 200
  ip address 192.168.100.1  255.255.255.0
!
interface Ethernet0/1.200
  description ***Link to Server2 Segment***
  encapsulation dot10 100
  ip address 192.168.200.1  255.255.255.0
!
interface Ethernet0/2
  description ***Link to R1***
  ip address 172.16.14.2  255.255.255.252
!
interface Ethernet0/3
  description ***Link to LAN***
  ip address 10.10.10.1  255.255.255.0
!
router rip
  version 2
  network 10.0.0.0
  network 172.16.0.0
  network 192.168.1.0
  network 192.168.100.0
  network 192.168.200.0
  no auto-summry
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
!
!
control-plane
!
!
```

R2

```
!
!
!
!
!
line con 0
  logging synchronous
line aux 0
line vty 0  4
  login
  transport input all
!
!
end
R2#show interfaces
Ethernet0/0 is up, line protocol is up
  Hardware is AudP2, address is aabb.cc00.4200 (bia aabb.cc00.4200)
  Description: ***Link to R3***
  Internet address is 172.16.11.1/30
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:32, output 00:00:08, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     50 packets input, 15683 bytes, 0 no buffer
     Received 50 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     343 packets output, 42566 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
```

R2

```
     2 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:00, output 00:00:08, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 1000 bits/sec, 2 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     4632 packets input, 308536 bytes, 0 no buffer
     Received 4421 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     512 packets output, 73148 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     73 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/1.1 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
  Description: ***Link to Management Segment***
  Internet address is 192.168.1.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation 802.10 Virtual LAN, Vlan ID 1.
  ARP type: ARPA, ARP Timeout 04:00:00
  Keepalive set (10 sec)
```

R2

```
Last clearing of ''show interface'' counters never
Ethernet0/1.100 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
  Description: ***Link to Server Segment***
  Internet address is 192.168.100.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation 802.10 Virtual LAN, Vlan ID 200.
  ARP type: ARPA, ARP Timeout 04:00:00
  Keepalive set (10 sec)
Last clearing of ''show interface'' counters never
Ethernet0/1.200 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
  Description: ***Link to Server2 Segment***
  Internet address is 192.168.200.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation 802.10 Virtual LAN, Vlan ID 100.
  ARP type: ARPA, ARP Timeout 04:00:00
  Keepalive set (10 sec)
Last clearing of ''show interface'' counters never
Ethernet0/2 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4220 (bia aabb.cc00.4220)
  Description: ***Link to R1***
  Internet address is 172.16.14.2/30
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:02, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
```

R2

```
     128 packets input, 21994 bytes, 0 no buffer
     Received 127 broadcasts (77 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     345 packets output, 39952 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4230 (bia aabb.cc00.4230)
  Description: ***Link to LAN***
  Internet address is 10.10.10.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     344 packets output, 42752 bytes, 0 underruns
     0 output errors, 0 collisions, 6 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
```

R2

```
R2#
R2#
R2# show ip interface brief
Interface          IP-Address      OK?  Method   Status     Protocol
Ethernet0/0        172.16.11.1     Yes  NVRAM    up         up
Ethernet0/1        unassigned      Yes  NVRAM    up         up
Ethernet0/1.1      192.168.1.1     Yes  NVRAM    up         up
Ethernet0/1.100    192.168.100.1   Yes  NVRAM    up         up
Ethernet0/1.200    192.168.200.1   Yes  NVRAM    up         up
Ethernet0/2        172.16.14.2     Yes  NVRAM    up         up
Ethernet0/3        10.10.10.1      Yes  NVRAM    up         up

R2#
R2#
R2#show ip route
Codes : L – local, C – connected, S – static, R – RIP, M – mobile, B - BGP
        D – EIGRP, EX – EIGRP external, 0 – OSPF, IA – OSPF inter area
        N1 – OSPF NSSA external type 1, N2 – OSPF NSSA external type 2
        E1 – OSPF external type 1, E2 – OSPF external type 2
        i – IS-IS, su – IS-IS summary, LI – IS-IS level-1, L2 – IS-IS level-2
        ia – IS-IS inter area, * – candidate default, U – per-user static route
        o – ODR, P – periodic downloaded static route, H – NHRP, 1 – LISP
        + - replicated route, % - next hop override

Gateway of last resort is 172.16.14.1 to network 0.0.0.0

R*          0.0.0.0 [120/1] via 172.16.14.1, 00:00:23, Ethernet0/2
        10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C          10.10.10.0/24 is directly connected, Ethernet 0/3
L          10.10.10.1/32 is directly connected, Ethernet 0/3
        172.16.0.0/16 is variably subnetted, 5 subnets, 3 masks
C          172.16.11.0/30 is directly connected, Ethernet 0/0
L          172.16.11.1/32 is directly connected, Ethernet 0/0
C          172.16.14.0/30 is directly connected, Ethernet 0/2
L          172.16.14.2/32 is directly connected, Ethernet 0/2
R          172.16.16.0/24 [120/1] via 172.16.14.1, 00:00:23, Ethernet0/2
        192.168.1.0/24 is variably subnetted, 2 subnets, 3 masks
```

R2

```
C        192.168.1.0/24 is directly connected, Ethernet 0/1.1
L        192.168.1.1/32 is directly connected, Ethernet 0/1.1
       192.168.100.0/24 is variably subnetted, 2 subnets, 3 masks
C        192.168.100.0/24 is directly connected, Ethernet 0/1.100
L        192.168.100.1/32 is directly connected, Ethernet 0/1.100
       192.168.200.0/24 is variably subnetted, 2 subnets, 3 masks
C        192.168.200.0/24 is directly connected, Ethernet 0/1.200
L        192.168.200.1/32 is directly connected, Ethernet 0/1.200
R2#
```

R3

```
R3#show run
R3#show running-config
Building configuration…

Current configuration : 913 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R3
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
nni polling-interval 60
no nni auto-configure
no nni pvc
nni snmp-timeout 180
!
!
!
!



!
!
!
!
ip cef
no ipv6 cef
!
```

R3

```
!
!
!
!
!
!
!
!
redundancy
!
!
!
!
!
!
!
!
!
!
!
!
!
interface Ethernet0/0
  description ***Link to LAN***
  ip address 10.10.12.1  255.255.255.252
!
interface Ethernet0/1
  description ***Link to R2***
  ip address 172.16.11.2  255.255.255.252
!
interface Ethernet0/2
  no ip address
  shutdown
!
interface Ethernet0/3
  no ip address
  shutdown
```

R3

```
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
!
!
!
!
control-plane
!
!
!
!
!
!
!
line con 0
  logging synchronous
line aux 0
line vty 0  4
  login
  transport input all
!
!
end
R3#show interfaces
Ethernet0/0 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4300 (bia aabb.cc00.4300)
  Description: ***Link to LAN***
  Internet address is 10.10.12.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
```

R3

```
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
!
!
!
!
control-plane
!
!
!
!
!
!
!
line con 0
  logging synchronous
line aux 0
line vty 0  4
  login
  transport input all
!
!
end
R3#show interfaces
Ethernet0/0 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4300 (bia aabb.cc00.4300)
  Description: ***Link to LAN***
  Internet address is 10.10.12.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
```

R3

```
Last input never, output never, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     666 packets output, 71699 bytes, 0 underruns
     0 output errors, 0 collisions, 11 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4310 (bia aabb.cc00.4310)
  Description: ***Link to R2***
  Internet address is 172.16.11.2/30
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:21, output 00:00:05, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     316 packets input, 74089 bytes, 0 no buffer
     Received 316 broadcasts (200 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
```

R3

```
     0 input packets with dribble condition detected
     669 packets output, 71888 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/2 is administratively down, line protocol is down
  Hardware is AmdP2, address is aabb.cc00.4320 (bia aabb.cc00.4320)
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     0 packets output, 0 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is administratively down, line protocol is down
  Hardware is AmdP2, address is aabb.cc00.4330 (bia aabb.cc00.4330)
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
```

R3

```
  ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     0 packets output, 0 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
R3#
R3#
R3# show ip interface brief
Interface       IP-Address      OK?   Method      Status
Protocol
Ethernet0/0     10.10.12.1      Yes   NVRAM       up
up
Ethernet0/1     172.16.11.2     Yes   NVRAM       up
up
Ethernet0/2     unassigned      Yes   NVRAM       administratively down
down
Ethernet0/3     unassigned      Yes   NVRAM       administratively down
down
R3#
R3#
R3#show ip route
Codes : L – local, C – connected, S – static, R – RIP, M – mobile, B - BGP
        D – EIGRP, EX – EIGRP external, 0 – OSPF, IA – OSPF inter area
        N1 – OSPF NSSA external type 1, N2 – OSPF NSSA external type 2
```

R3

```
        E1 – OSPF external type 1, E2 – OSPF external type 2
        i – IS-IS, su – IS-IS summary, LI – IS-IS level-1, L2 – IS-IS level-2
        ia – IS-IS inter area, * – candidate default, U – per-user static route
        o – ODR, P – periodic downloaded static route, H – NHRP, 1 – LISP
        + - replicated route, % - next hop override

Gateway of last resort is not set

        10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C          10.10.12.0/24 is directly connected, Ethernet 0/0
L          10.10.12.1/32 is directly connected, Ethernet 0/0
        172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
C          172.16.11.0/30 is directly connected, Ethernet 0/1
L          172.16.11.2/32 is directly connected, Ethernet 0/1
R3#
R3#
R3#
```

L2SW1

```
L2SW1#show run
L2SW1#show running-config
Building configuration…

Current configuration : 1074 bytes
!
version 15.1
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
service compress-config
!
hostname L2SW1
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
!
ip cef
!
interface Vlan1
  ip address 192.168.1.254  255.255.255.0
!
ip default-gateway 192.168.1.1
!
no ip http server
!
!
!
!
!
control-plane
!
!
```

L2SW1

```
line con 0
  logging synchronous
line aux
line vty 0  4
  login
!
End
L2SW1#
L2SW1#
L2SW1#show interfaces
Ethernet0/0 is up, line protocol is up (connected)
!
interface Ethernet0/0
  description ***Link to R2***
  switchport trunk encapsulation dot1q
  switchport mode trunk
  duplex auto
!
interface Ethernet0/1
  description ***Link to Server1 segment***
  switchport access vlan 100
  switchport mode access
  duplex auto
!
interface Ethernet0/2
  description ***Link to Server2 segment***
  switchport access vlan 200
  switchport mode access
  duplex auto
!
interface Ethernet0/3
  duplex auto
!
interface Vlan1
  ip address 192.168.1.254  255.255.255.0
!
L2SW1#show interfaces
Ethernet0/0 is up, line protocol is up (connected)
```

L2SW1

```
  Hardware is AmdP2, address is aabb.cc00.4500 (bia aabb.cc00.4500)
  Description: ***Link to R2***
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Auto-duplex, Auto-speed, media type is unknown
  input flow-control is off, output flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:07, output 00:00:00, output hang never
  Last clearing of ''show interface'' counters never
  Input queue: 12/2000/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/00 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 2 packets/sec
     1447 packets input, 208877 bytes, 0 no buffer
     Received 139 broadcasts (0 multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     13457 packets output, 919293 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up (connected)
  Hardware is AmdP2, address is aabb.cc00.4510 (bia aabb.cc00.4510)
  Description: ***Link to Sercer1 segment***
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Auto-duplex, Auto-speed, media type is unknown
  input flow-control is off, output flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:07, output 00:00:01, output hang never
```

L2SW1

```
Last clearing of ''show interface'' counters never
Input queue: 5/2000/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/0 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     755 packets input, 80219 bytes, 0 no buffer
     Received 123 broadcasts (0 multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     3867 packets output, 268544 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/2 is up, line protocol is up (connected)
  Hardware is AmdP2, address is aabb.cc00.4520 (bia aabb.cc00.4520)
  Description: ***Link to Sercer2 segment***
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Auto-duplex, Auto-speed, media type is unknown
  input flow-control is off, output flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:07, output 00:00:01, output hang never
Last clearing of ''show interface'' counters never
Input queue: 5/2000/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/0 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     758 packets input, 81010 bytes, 0 no buffer
     Received 125 broadcasts (0  multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
```

L2SW1

```
     0 input packets with dribble condition detected
     3867 packets output, 268544 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is up, line protocol is up (connected)
  Hardware is AmdP2, address is aabb.cc00.4530 (bia aabb.cc00.4530)
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Auto-duplex, Auto-speed, media type is unknown
  input flow-control is off, output flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input never, output never, output hang never
  Last clearing of ''show interface'' counters never
  Input queue: 0/2000/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/0 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     3566 packets output, 252186 bytes, 0 underruns
     0 output errors, 0 collisions, 55 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Vlan1 is up, line protocol is up
  Hardware is Ethernet SVI, address is aabb.cc80.4500 (bia aabb.cc80.4500)
  Internet address is 192.168.1.254/24
```

L2SW1

```
  MTU 1500 bytes, BW 1000000 Kbit/sec, DLY 10 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive not supported
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:12, output never, output hang never
  Last clearing of ''show interface'' counters never
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/40 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     235 packets input, 42480 bytes, 0 no buffer
     Received 235 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     11 packets output, 830 bytes, 0 underruns
     0 output errors, 0 interface resets
     0 unknown protocol drops
     0 output buffer failures, 0 output buffers swapped out
L2SW1#
L2SW1#
L2SW1# show ip interface brief
Interface       IP-Address       OK?   Method   Status      Protocol
Ethernet0/0     unassigned       Yes   unset    up          up
Ethernet0/1     unassigned       Yes   unset    up          up
Ethernet0/2     unassigned       Yes   unset    up          up
Ethernet0/3     unassigned       Yes   unset    up          up
Vlan1           192.168.1.254    Yes   NVRAM    up          up
L2SW1#
L2SW1#
L2SW1#show ip route
Codes : L – local, C – connected, S – static, R – RIP, M – mobile, B - BGP
        D – EIGRP, EX – EIGRP external, 0 – OSPF, IA – OSPF inter area
        N1 – OSPF NSSA external type 1, N2 – OSPF NSSA external type 2
        E1 – OSPF external type 1, E2 – OSPF external type 2
        i – IS-IS, su – IS-IS summary, LI – IS-IS level-1, L2 – IS-IS level-2
        ia – IS-IS inter area, * – candidate default, U – per-user static route
```

L2SW1

```
        o – ODR, P – periodic downloaded static route, H – NHRP, l – LISP
        + - replicated route, % - next hop override

Gateway of last resort is not set


        192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C          192.168.1.0/24 is directly connected, Vlan1
L          192.168.1.254/32 is directly connected, Vlan1
L2SW1#
L2SW1#
L2SW1#
```

Examine R2 configuration, the traffic that is destined to R3 LAN network sourced from Router R2 is forwarded to R1 instead R3. What could be an issue?

```
R2#traceroute 10.10.12.1 source 10.10.10.1
Type escape sequence to abort.
Tracing the route to 10.10.12.1
VRF info: (vrf in name/id, vrf out name/id)
1 172.16.14.1 0 msec 1 msec 0 msec
2 172.16.14.1 !H !H *

R2#
```

A. RIPv2 enabled on R3, but R3 LAN network that is not advertised into RIPv2 domain.
B. RIPv2 routing updates are suppressed between R2 and R3 using passive interface feature.
C. RIPv2 not enabled on R3.
D. No issue that is identified; this behavior is normal since default route propagated into RIPv2 domain by Router R1.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
First we should check the routing table of R2 with the “show ip route” command.

```
R2#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B -
BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS
level-2
       ia - IS-IS inter area, * - candidate default, U - per-user
static route
       o - ODR, P - periodic downloaded static route, H - NHRP, l -
LISP
       a - application route
       + - replicated route, % - next hop override

Gateway of last resort is 172.16.14.1 to network 0.0.0.0

R*    0.0.0.0/0 [120/1] via 172.16.14.1, 00:00:26, Ethernet0/2
      10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C        10.10.10.0/24 is directly connected, Ethernet0/3
L        10.10.10.1/32 is directly connected, Ethernet0/3
      172.16.0.0/16 is variably subnetted, 5 subnets, 3 masks
C        172.16.11.0/30 is directly connected, Ethernet0/0
L        172.16.11.1/32 is directly connected, Ethernet0/0
C        172.16.14.0/30 is directly connected, Ethernet0/2
L        172.16.14.2/32 is directly connected, Ethernet0/2
R        172.16.16.0/24 [120/1] via 172.16.14.1, 00:00:26, Ethernet0/2
      192.168.100.0/24 is variably subnetted, 2 subnets, 2 masks
C        192.168.100.0/24 is directly connected, Ethernet0/1.100
L        192.168.100.1/32 is directly connected, Ethernet0/1.100
      192.168.200.0/24 is variably subnetted, 2 subnets, 2 masks
C        192.168.200.0/24 is directly connected, Ethernet0/1.200
L        192.168.200.1/32 is directly connected, Ethernet0/1.200
```

In this table we cannot find the subnet “10.10.12.0/24” (R3 LAN network) so R2 will use the default route advertised from R1 (with the command “default-information originate” on R1) to reach unknown destination, in this case subnet 10.10.12.0/24 -> R2 will send traffic to 10.10.12.0/24 to R1.

Next we need to find out why R3 did not advertise this subnet to R2. A quick check with the “show running-config” on R3 we will see that R3 was not configured with RIP (no “router rip” section). Therefore we can conclude RIPv2 was not enabled on R3.

QUESTION 340
You work for a company that provides managed network services, and of your real estate clients running a small office is experiencing network issues, Troubleshoot the network issues.

Router R1 connects the main office to internet, and routers R2 and R3 are internal routers NAT is enabled on Router R1.
The routing protocol that is enable between routers R1, R2, and R3 is RIPv2.
R1 sends default route into RIPv2 for internal routers to forward internet traffic to R1.

Server1 and Server2 are placed in VLAN 100 and 200 respectively, and dare still running router on stick configuration with router R2.
You have console access on R1, R2, R3, and L2SW1 devices.
Use only show commands to troubleshoot the issues.

Instructions
Enter IOS commands on the device to verify network operation and answer the multiple-choice questions. This task does not require device configuration.
Click the device icon to gain access to the console of the device. No console or enable passwords are required.
To access the multiple-choice questions, click the numbered boxes on the left of the top panel.
There are four multiple-choice questions with this task. Be sure to answer all four questions before clicking Next.

R1

```
R1#show r
R1#show run
R1#show running-config
Building configuration…

Current configuration : 1438 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R1
!
Boot-start-marker
Boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
nni polling-interval 60
no nni auto-configure
no nni pvc
nni snmp-timeout 180
!
!
!
!
```

R1

```
!
!
!
!
ip cef
no ipv6 cef
!
multilink bundle-name authenticated
!
!
!
!
!
!
!
!
!
Redundancy
!
!
!
!
!
!
!
!
!
!
!
!
!
!
```

R1

```
interface Ethernet0/0
  description ***Link to ISP***
  ip address 209.165.201.1  255.255.255.224
  ip nat outside
  ip virtual-reassembly in
!
interface Ethernet0/1
  description ***Link to LAN***
  ip address 172.16.16.1  255.255.255.0
  ip nat inside
  ip virtual-reassembly in
!
interface Ethernet0/2
  description ***Link to R2***
  ip address 172.16.14.1  255.255.255.252
  ip nat inside
  ip virtual-reassembly in
!
interface Ethernet0/3
  no ip address
  shutdown
!
router rip
  version 2
  network 172.16.0.0
  default-information originate
  no auto-summary
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
```

R1

```
ip nat inside source list LOCAL interface Ethernet0/0 overload
ip route 10.10.10.0  255.255.255.0  172.16.14.2  200
!
ip access-list standard LOCAL
  permit 10.0.0.0  0.255.255.255
  permit 172.16.0.0  0.0.255.255
  permit 192.168.0.0  0.0.255.255
!
!
!
!
control-plane
!
!
line con 0
  logging synchronous
line aux 0
line vty 0  4
  login
  transport input all
!
!
end
R1#show interfaces
Ethernet0/0 is up, line protocoli s up
  Hardware is AudP2, address is aabb.cc00.4100 (bia aabb.cc00.4100)
  Description: ***Link to ISP***
  Internet address is 209.165.201.1/27
  MTU 1500 bytes, BU 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, txload 1/255
Encapsulation ARPA, loopback not set
Keepalive set (10 sec)
```

R1

```
ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:53, output 00:00:07, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (site/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     40 packets input, 11786 bytes, 0 no buffer
     Received 39 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     191 packets output, 20271 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
     4 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up
  Hardware is AudP2, address is aabb.cc00.4110 (bia aabb.cc00.4110)
  Description: ***Link to LAN***
  Internet address is 172.16.16.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
```

R1

```
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     245 packets output, 30725 bytes, 0 underruns
     0 output errors, 0 collisions, 4 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/2 is up, line protocol is up
  Hardware is AudP2, address is aabb.cc00.4120 (bia aabb.cc00.4120)
  Description: ***Link to R2***
  Internet address is 172.16.14.1/30
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:16, output 00:00:07, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     98 packets input, 20097 bytes, 0 no buffer
     Received 97 broadcasts (54 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     247 packets output, 25359 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
     4 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
```

R1

```
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is administratively down, line protocol is down
  Hardware is AudP2, address is aabb.cc00.4130 (bia aabb.cc00.4130)
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     0 packets output, 0 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
NVI0 is up, line protocoli s up
  Hardware is NVI
  Interface is unnumbered. Using address of Ethernet0/0 (209.165.201.1)
  MTU 1514 bytes, BW 56 Kbit/sec, DLY 5000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation UNKNOWN, loopback not set
  Keepalive set (10 sec)
Last input never, output never, output hang never
Last clearing of ''show interface'' counters never
```

R1

```
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
     0 packets output, 0 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     0 unknown protocol drops
     0 output buffer failures, 0 output buffers swapped out
R1#
R1# show ip interface brief
Interface        IP-Address      OK?  Method   Status
Protocol
Ethernet0/0      209.165.201.1   Yes  NVRAM    up                      up
Ethernet0/1      172.16.16.1     Yes  NVRAM    up                      up
Ethernet0/2      172.16.14.1     Yes  NVRAM    up                      up
Ethernet0/3      unassigned      Yes  NVRAM    administratively down   down
NVI0             209.165.201.1   Yes  unset    up                      up
R1#
R1#
R1#show ip route
Codes: L – local, C – connected, S – static, R – RIP, M – mobile, B - BGP
          D – EIGRP, EX – EIGRP external, 0 – OSPF, IA – OSPF inter area
          N1 – OSPF NSSA external type 1, N2 – OSPF NSSA external type 2
          E1 – OSPF external type 1, E2 – OSPF external type 2
          i – IS-IS, su – IS-IS summary, LI – IS-IS level-1, L2 – IS-IS level-2
          ia – IS-IS inter area, * – candidate default, U – per-user static route
          o – ODR, P – periodic downloaded static route, H – NHRP, 1 – LISP
          + - replicated route, % - next hop override

Gateway of last resort is not set

          10.0.0.0/24 is subnetted, 1 subnets
R            10.10.10.0 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
```

R1

```
        172.16.0.0/16 is variably subnetted, 5 subnets, 3 masks
R          172.16.11.0/30 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
C          172.16.14.0/30 is directly connected, Ethernet 0/2
L          172.16.14.1/32 is directly connected, Ethernet 0/2
C          172.16.16.0/24 is directly connected, Ethernet 0/1
L          172.16.16.1/32 is directly connected, Ethernet 0/1
R       192.168.1.0/24 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
R       192.168.100.0/24 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
R       192.168.200.0/24 [120/1] via 172.16.14.2, 00:00:20, Ethernet0/2
        209.165.201.0/24 is variably subnetted, 2 subnets, 2 masks
C          209.165.201.0/27 is directly connected, Ethernet0/0
L          209.165.201.1/32 is directly connected, Ethernet0/0
R1#
R1#
```

R2

```
R2#show run
R2#show running-config
Building configuration…

Current configuration : 1505 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R2
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
nni polling-interval 60
no nni auto-configure
no nni pvc
nni snmp-timeout 180
!
!
!
!



!
!
!
!
ip cef
no ipv6 cef
!
```

R2

```
multilink bundle-name authenticated
!
!
!
!
!
!
!
!
!
redundancy
!
!
!
!
!
!
!
!
!
!
!
!
!
!
!
interface Ethernet0/0
 description ***Link to R3***
 ip address 172.16.11.1  255.255.255.252
!
interface Ethernet0/1
 no ip address
!
interface Ethernet0/1.1
 description ***Link to Management Segment***
 encapsulation dot10 1 native
 ip address 192.168.1.1  255.255.255.0
!
```

R2

```
interface Ethernet0/1.100
  description ***Link to Server1 Segment***
  encapsulation dot10 200
  ip address 192.168.100.1  255.255.255.0
!
interface Ethernet0/1.200
  description ***Link to Server2 Segment***
  encapsulation dot10 100
  ip address 192.168.200.1  255.255.255.0
!
interface Ethernet0/2
  description ***Link to R1***
  ip address 172.16.14.2  255.255.255.252
!
interface Ethernet0/3
  description ***Link to LAN***
  ip address 10.10.10.1  255.255.255.0
!
router rip
  version 2
  network 10.0.0.0
  network 172.16.0.0
  network 192.168.1.0
  network 192.168.100.0
  network 192.168.200.0
  no auto-summry
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
!
!
control-plane
!
!
```

R2

```
!
!
!
!
!
line con 0
  logging synchronous
line aux 0
line vty 0  4
  login
  transport input all
!
!
end
R2#show interfaces
Ethernet0/0 is up, line protocol is up
  Hardware is AudP2, address is aabb.cc00.4200 (bia aabb.cc00.4200)
  Description: ***Link to R3***
  Internet address is 172.16.11.1/30
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:32, output 00:00:08, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     50 packets input, 15683 bytes, 0 no buffer
     Received 50 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     343 packets output, 42566 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
```

R2

```
     2 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:00, output 00:00:08, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 1000 bits/sec, 2 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     4632 packets input, 308536 bytes, 0 no buffer
     Received 4421 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     512 packets output, 73148 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     73 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/1.1 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
  Description: ***Link to Management Segment***
  Internet address is 192.168.1.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation 802.10 Virtual LAN, Vlan ID 1.
  ARP type: ARPA, ARP Timeout 04:00:00
  Keepalive set (10 sec)
```

R2

```
Last clearing of ''show interface'' counters never
Ethernet0/1.100 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
  Description: ***Link to Server Segment***
  Internet address is 192.168.100.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation 802.10 Virtual LAN, Vlan ID 200.
  ARP type: ARPA, ARP Timeout 04:00:00
  Keepalive set (10 sec)
Last clearing of ''show interface'' counters never
Ethernet0/1.200 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4210 (bia aabb.cc00.4210)
  Description: ***Link to Server2 Segment***
  Internet address is 192.168.200.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation 802.10 Virtual LAN, Vlan ID 100.
  ARP type: ARPA, ARP Timeout 04:00:00
  Keepalive set (10 sec)
Last clearing of ''show interface'' counters never
Ethernet0/2 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4220 (bia aabb.cc00.4220)
  Description: ***Link to R1***
  Internet address is 172.16.14.2/30
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:08, output 00:00:02, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
```

R2

```
     128 packets input, 21994 bytes, 0 no buffer
     Received 127 broadcasts (77 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     345 packets output, 39952 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4230 (bia aabb.cc00.4230)
  Description: ***Link to LAN***
  Internet address is 10.10.10.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     344 packets output, 42752 bytes, 0 underruns
     0 output errors, 0 collisions, 6 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
```

R2

```
R2#
R2#
R2# show ip interface brief
Interface          IP-Address      OK?  Method   Status     Protocol
Ethernet0/0        172.16.11.1     Yes  NVRAM    up         up
Ethernet0/1        unassigned      Yes  NVRAM    up         up
Ethernet0/1.1      192.168.1.1     Yes  NVRAM    up         up
Ethernet0/1.100    192.168.100.1   Yes  NVRAM    up         up
Ethernet0/1.200    192.168.200.1   Yes  NVRAM    up         up
Ethernet0/2        172.16.14.2     Yes  NVRAM    up         up
Ethernet0/3        10.10.10.1      Yes  NVRAM    up         up

R2#
R2#
R2#show ip route
Codes : L – local, C – connected, S – static, R – RIP, M – mobile, B - BGP
        D – EIGRP, EX – EIGRP external, 0 – OSPF, IA – OSPF inter area
        N1 – OSPF NSSA external type 1, N2 – OSPF NSSA external type 2
        E1 – OSPF external type 1, E2 – OSPF external type 2
        i – IS-IS, su – IS-IS summary, LI – IS-IS level-1, L2 – IS-IS level-2
        ia – IS-IS inter area, * – candidate default, U – per-user static route
        o – ODR, P – periodic downloaded static route, H – NHRP, 1 – LISP
        + - replicated route, % - next hop override

Gateway of last resort is 172.16.14.1 to network 0.0.0.0

R*          0.0.0.0 [120/1] via 172.16.14.1, 00:00:23, Ethernet0/2
        10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C          10.10.10.0/24 is directly connected, Ethernet 0/3
L          10.10.10.1/32 is directly connected, Ethernet 0/3
        172.16.0.0/16 is variably subnetted, 5 subnets, 3 masks
C          172.16.11.0/30 is directly connected, Ethernet 0/0
L          172.16.11.1/32 is directly connected, Ethernet 0/0
C          172.16.14.0/30 is directly connected, Ethernet 0/2
L          172.16.14.2/32 is directly connected, Ethernet 0/2
R          172.16.16.0/24 [120/1] via 172.16.14.1, 00:00:23, Ethernet0/2
        192.168.1.0/24 is variably subnetted, 2 subnets, 3 masks
```

R2

```
C        192.168.1.0/24 is directly connected, Ethernet 0/1.1
L        192.168.1.1/32 is directly connected, Ethernet 0/1.1
       192.168.100.0/24 is variably subnetted, 2 subnets, 3 masks
C        192.168.100.0/24 is directly connected, Ethernet 0/1.100
L        192.168.100.1/32 is directly connected, Ethernet 0/1.100
       192.168.200.0/24 is variably subnetted, 2 subnets, 3 masks
C        192.168.200.0/24 is directly connected, Ethernet 0/1.200
L        192.168.200.1/32 is directly connected, Ethernet 0/1.200
R2#
```

R3

```
R3#show run
R3#show running-config
Building configuration…

Current configuration : 913 bytes
!
version 15.2
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
!
hostname R3
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
nni polling-interval 60
no nni auto-configure
no nni pvc
nni snmp-timeout 180
!
!
!
!



!
!
!
!
ip cef
no ipv6 cef
!
```

R3

```
!
!
!
!
!
!
!
!
redundancy
!
!
!
!
!
!
!
!
!
!
!
!
!
interface Ethernet0/0
  description ***Link to LAN***
  ip address 10.10.12.1  255.255.255.252
!
interface Ethernet0/1
  description ***Link to R2***
  ip address 172.16.11.2  255.255.255.252
!
interface Ethernet0/2
  no ip address
  shutdown
!
interface Ethernet0/3
  no ip address
  shutdown
```

R3

```
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
!
!
!
!
control-plane
!
!
!
!
!
!
!
line con 0
  logging synchronous
line aux 0
line vty 0  4
  login
  transport input all
!
!
end
R3#show interfaces
Ethernet0/0 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4300 (bia aabb.cc00.4300)
  Description: ***Link to LAN***
  Internet address is 10.10.12.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
```

R3

```
!
ip forward-protocol nd
!
!
no ip http server
no ip http secure-server
!
!
!
!
!
control-plane
!
!
!
!
!
!
!
line con 0
  logging synchronous
line aux 0
line vty 0  4
  login
  transport input all
!
!
end
R3#show interfaces
Ethernet0/0 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4300 (bia aabb.cc00.4300)
  Description: ***Link to LAN***
  Internet address is 10.10.12.1/24
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
    reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
```

R3

```
Last input never, output never, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     666 packets output, 71699 bytes, 0 underruns
     0 output errors, 0 collisions, 11 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up
  Hardware is AmdP2, address is aabb.cc00.4310 (bia aabb.cc00.4310)
  Description: ***Link to R2***
  Internet address is 172.16.11.2/30
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:21, output 00:00:05, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     316 packets input, 74089 bytes, 0 no buffer
     Received 316 broadcasts (200 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
```

R3

```
     0 input packets with dribble condition detected
     669 packets output, 71888 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/2 is administratively down, line protocol is down
  Hardware is AmdP2, address is aabb.cc00.4320 (bia aabb.cc00.4320)
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     0 packets output, 0 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is administratively down, line protocol is down
  Hardware is AmdP2, address is aabb.cc00.4330 (bia aabb.cc00.4330)
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
```

R3

```
  ARP type: ARPA, ARP Timeout 04:00:00
Last input never, output never, output hang never
Last clearing of ''show interface'' counters never
Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/40 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     0 packets output, 0 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
R3#
R3#
R3# show ip interface brief
Interface       IP-Address      OK?   Method      Status
Protocol
Ethernet0/0     10.10.12.1      Yes   NVRAM       up
up
Ethernet0/1     172.16.11.2     Yes   NVRAM       up
up
Ethernet0/2     unassigned      Yes   NVRAM       administratively down
down
Ethernet0/3     unassigned      Yes   NVRAM       administratively down
down
R3#
R3#
R3#show ip route
Codes : L – local, C – connected, S – static, R – RIP, M – mobile, B - BGP
        D – EIGRP, EX – EIGRP external, 0 – OSPF, IA – OSPF inter area
        N1 – OSPF NSSA external type 1, N2 – OSPF NSSA external type 2
```

R3

```
        E1 – OSPF external type 1, E2 – OSPF external type 2
        i – IS-IS, su – IS-IS summary, LI – IS-IS level-1, L2 – IS-IS level-2
        ia – IS-IS inter area, * – candidate default, U – per-user static route
        o – ODR, P – periodic downloaded static route, H – NHRP, 1 – LISP
        + - replicated route, % - next hop override

Gateway of last resort is not set

        10.0.0.0/8 is variably subnetted, 2 subnets, 2 masks
C          10.10.12.0/24 is directly connected, Ethernet 0/0
L          10.10.12.1/32 is directly connected, Ethernet 0/0
        172.16.0.0/16 is variably subnetted, 2 subnets, 2 masks
C          172.16.11.0/30 is directly connected, Ethernet 0/1
L          172.16.11.2/32 is directly connected, Ethernet 0/1
R3#
R3#
R3#
```

L2SW1

```
L2SW1#show run
L2SW1#show running-config
Building configuration…

Current configuration : 1074 bytes
!
version 15.1
service timestamps debug datetime msec
service timestamps log datetime msec
no service password-encryption
service compress-config
!
hostname L2SW1
!
boot-start-marker
boot-end-marker
!
!
!
no aaa new-model
clock timezone PST -8 0
!
ip cef
!
interface Vlan1
  ip address 192.168.1.254  255.255.255.0
!
ip default-gateway 192.168.1.1
!
no ip http server
!
!
!
!
!
control-plane
!
!
```

L2SW1

```
line con 0
  logging synchronous
line aux
line vty 0  4
  login
!
End
L2SW1#
L2SW1#
L2SW1#show interfaces
Ethernet0/0 is up, line protocol is up (connected)
!
interface Ethernet0/0
  description ***Link to R2***
  switchport trunk encapsulation dot1q
  switchport mode trunk
  duplex auto
!
interface Ethernet0/1
  description ***Link to Server1 segment***
  switchport access vlan 100
  switchport mode access
  duplex auto
!
interface Ethernet0/2
  description ***Link to Server2 segment***
  switchport access vlan 200
  switchport mode access
  duplex auto
!
interface Ethernet0/3
  duplex auto
!
interface Vlan1
  ip address 192.168.1.254  255.255.255.0
!
L2SW1#show interfaces
Ethernet0/0 is up, line protocol is up (connected)
```

L2SW1

```
  Hardware is AmdP2, address is aabb.cc00.4500 (bia aabb.cc00.4500)
  Description: ***Link to R2***
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Auto-duplex, Auto-speed, media type is unknown
  input flow-control is off, output flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:07, output 00:00:00, output hang never
  Last clearing of ''show interface'' counters never
  Input queue: 12/2000/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/00 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 2 packets/sec
     1447 packets input, 208877 bytes, 0 no buffer
     Received 139 broadcasts (0 multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     13457 packets output, 919293 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/1 is up, line protocol is up (connected)
  Hardware is AmdP2, address is aabb.cc00.4510 (bia aabb.cc00.4510)
  Description: ***Link to Sercer1 segment***
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Auto-duplex, Auto-speed, media type is unknown
  input flow-control is off, output flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:07, output 00:00:01, output hang never
```

L2SW1

```
Last clearing of ''show interface'' counters never
Input queue: 5/2000/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/0 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     755 packets input, 80219 bytes, 0 no buffer
     Received 123 broadcasts (0 multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     3867 packets output, 268544 bytes, 0 underruns
     0 output errors, 0 collisions, 1 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/2 is up, line protocol is up (connected)
  Hardware is AmdP2, address is aabb.cc00.4520 (bia aabb.cc00.4520)
  Description: ***Link to Sercer2 segment***
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Auto-duplex, Auto-speed, media type is unknown
  input flow-control is off, output flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00
Last input 00:00:07, output 00:00:01, output hang never
Last clearing of ''show interface'' counters never
Input queue: 5/2000/0/0 (size/max/drops/flushes); Total output drops: 0
Queueing strategy: fifo
Output queue: 0/0 (size/max)
5 minute input rate 0 bits/sec, 0 packets/sec
5 minute output rate 0 bits/sec, 0 packets/sec
     758 packets input, 81010 bytes, 0 no buffer
     Received 125 broadcasts (0  multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
```

L2SW1

```
     0 input packets with dribble condition detected
     3867 packets output, 268544 bytes, 0 underruns
     0 output errors, 0 collisions, 0 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Ethernet0/3 is up, line protocol is up (connected)
  Hardware is AmdP2, address is aabb.cc00.4530 (bia aabb.cc00.4530)
  MTU 1500 bytes, BW 10000 Kbit/sec, DLY 1000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive set (10 sec)
  Auto-duplex, Auto-speed, media type is unknown
  input flow-control is off, output flow-control is unsupported
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input never, output never, output hang never
  Last clearing of ''show interface'' counters never
  Input queue: 0/2000/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/0 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts (0 multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     0 input packets with dribble condition detected
     3566 packets output, 252186 bytes, 0 underruns
     0 output errors, 0 collisions, 55 interface resets
     0 unknown protocol drops
     0 babbles, 0 late collision, 0 deferred
     0 lost carrier, 0 no carrier
     0 output buffer failures, 0 output buffers swapped out
Vlan1 is up, line protocol is up
  Hardware is Ethernet SVI, address is aabb.cc80.4500 (bia aabb.cc80.4500)
  Internet address is 192.168.1.254/24
```

L2SW1

```
  MTU 1500 bytes, BW 1000000 Kbit/sec, DLY 10 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation ARPA, loopback not set
  Keepalive not supported
  ARP type: ARPA, ARP Timeout 04:00:00
  Last input 00:00:12, output never, output hang never
  Last clearing of ''show interface'' counters never
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 0
  Queueing strategy: fifo
  Output queue: 0/40 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     235 packets input, 42480 bytes, 0 no buffer
     Received 235 broadcasts (0 IP multicasts)
     0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored
     11 packets output, 830 bytes, 0 underruns
     0 output errors, 0 interface resets
     0 unknown protocol drops
     0 output buffer failures, 0 output buffers swapped out
L2SW1#
L2SW1#
L2SW1# show ip interface brief
Interface       IP-Address       OK?   Method   Status      Protocol
Ethernet0/0     unassigned       Yes   unset    up          up
Ethernet0/1     unassigned       Yes   unset    up          up
Ethernet0/2     unassigned       Yes   unset    up          up
Ethernet0/3     unassigned       Yes   unset    up          up
Vlan1           192.168.1.254    Yes   NVRAM    up          up
L2SW1#
L2SW1#
L2SW1#show ip route
Codes : L – local, C – connected, S – static, R – RIP, M – mobile, B - BGP
        D – EIGRP, EX – EIGRP external, 0 – OSPF, IA – OSPF inter area
        N1 – OSPF NSSA external type 1, N2 – OSPF NSSA external type 2
        E1 – OSPF external type 1, E2 – OSPF external type 2
        i – IS-IS, su – IS-IS summary, LI – IS-IS level-1, L2 – IS-IS level-2
        ia – IS-IS inter area, * – candidate default, U – per-user static route
```

L2SW1

```
        o – ODR, P – periodic downloaded static route, H – NHRP, l – LISP
        + - replicated route, % - next hop override

Gateway of last resort is not set


        192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
C          192.168.1.0/24 is directly connected, Vlan1
L          192.168.1.254/32 is directly connected, Vlan1
L2SW1#
L2SW1#
L2SW1#
```

What is the correct statement below after examining the R1 routing table?

A. Traffic that is destined to 10.10.10.0/24 from R1 LAN network uses static route instead RIPv2 because the static route AD that is configured is less than the AD of RIPv2
B. Traffic that is destined to 10.10.10.0/24 from R1 LAN network uses RIPv2 instead static route because the static route AD that is configured is higher than the AD of RIPv2
C. Traffic that is destined to 10.10.10.0/24 from R1 LAN network uses static route instead RIPv2 But the traffic is forwarded to the ISP instead of the internal network.
D. Traffic that is destined to 10.10.10.0/24 from R1 LAN network uses RIPv2 instead static route because the static route AD that is configured is 255

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Surely we have to use the “show ip route” command to check the R1 routing table.

```
R1#show ip route
Codes: L - local, C - connected, S - static, R - RIP, M - mobile, B -
BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1, E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1, L2 - IS-IS
level-2
       ia - IS-IS inter area, * - candidate default, U - per-user
static route
       o - ODR, P - periodic downloaded static route, H - NHRP, l -
LISP
       a - application route
       + - replicated route, % - next hop override

Gateway of last resort is not set

      10.0.0.0/24 is subnetted, 1 subnets
R        10.10.10.0 [120/1] via 172.16.14.2, 00:00:06, Ethernet0/2
      172.16.0.0/16 is variably subnetted, 5 subnets, 3 masks
R        172.16.11.0/30 [120/1] via 172.16.14.2, 00:00:14, Ethernet0/2
C        172.16.14.0/30 is directly connected, Ethernet0/2
L        172.16.14.1/32 is directly connected, Ethernet0/2
C        172.16.16.0/24 is directly connected, Ethernet0/1
L        172.16.16.1/32 is directly connected, Ethernet0/1
R     192.168.100.0/24 [120/1] via 172.16.14.2, 00:00:14, Ethernet0/2
R     192.168.200.0/24 [120/1] via 172.16.14.2, 00:00:14, Ethernet0/2
      209.165.201.0/24 is variably subnetted, 2 subnets, 2 masks
C        209.165.201.0/27 is directly connected, Ethernet0/0
L        209.165.201.1/32 is directly connected, Ethernet0/0
```

As we see here, 10.10.10/24 is learned from RIP. Notice that although there is a static route on R1 to this destination (you can check with the “show running-config” on R1 to see the line “ip route 10.10.10.0 255. 255.255.0 172.16.14.2 200”), this static route is not installed to the routing table because it is not the best path because the Administrative Distance (AD) of this static route is 200 while the AD of RIP is 120 -> R1 chose the path with lowest AD so it chose path advertised via RIP.

QUESTION 341
Which feature automatically disables CEF when it is enabled?

A. RIB
B. ACL logging
C. multicast
D. IP redirects

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
ACL Logging means to use the "log" or "log-input" parameters at the end of the ACL statements. For example: "access- list 100 deny icmp any any echo reply log-input". In either situation, remember that using either of these two parameters disables CEF switching, which seriously impacts the performance of the router.

QUESTION 342
If a router has 3 hosts connected in one port and two other hosts connected in another port, how may broadcast domains are present on the router?

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

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 343
Which feature facilitate the tagging of a specific VLAN?

A. Routing
B. Hairpinning
C. Encapsulation
D. Switching

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 344
What does split horizon prevent?

A. routing loops, link state
B. routing loops, distance vector
C. switching loops, STP
D. switching loops, VTP

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 345
Which value to use in HSRP protocol election process ?

A. interface
B. virtual IP address
C. priority
D. router ID

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 346
Which of the following is needed to be enable back the role of active in HSRP?

A. prempt
B. priority

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 347
Which command is used to show the interface status of a router?

A. show interface status
B. show ip interface brief
C. show ip route
D. show interface

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 348
Which of the following privilege level is the most secured?

A. Level 0
B. Level 1
C. Level 15
D. Level 16

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 349
Which IPV6 feature is supported in IPV4 but is not commonly used?

A. unicast
B. multicast

C. anycast
D. broadcast

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 350
Which range represents the standard access list?

A. 99
B. 150
C. 299
D. 2000

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 351
What to do when the router password was forgotten?

A. use default password cisco to reset
B. access router physically
C. use ssl/vpn
D. Type confreg 0x2142 at the rommon 1

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 352
What 8-bit field exists in IP packet for QoS?

A. Tos Field
B. DSCP
C. IP Precedence
D. Cos

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 353
What feature uses a random time to re-sent a frame?

A. CSMA/CA
B. CSMA/CD

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 354
Which mode is compatible with Trunk, Access, and desirable ports?

A. Trunk Ports
B. Access Ports
C. Dynamic Auto
D. Dynamic Desirable

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 355
If you configure syslog messages without specifying the logging trap level, which log messages will the router send?

A. 0-4
B. 0-5
C. 0-6
D. 0-2
E. 0-1

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 356
Which of the following are found in a TCP header, but not in a UDP header? (Choose three.)

A. sequence number
B. acknowledgment number
C. source port
D. destination port
E. window size

F. checksum

Correct Answer: ABE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 357
When you power up a Cisco router, in what memory is the start-up configuration normally stored in?

A. RAM
B. ROM
C. FLASH
D. NVRAM

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 358
Which transport layer protocol is best suited for the transport of VoIP data?

A. RIP
B. UDP
C. TCP
D. OSPF
E. HTTP

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 359
An administrator issues the show ip interface s0/0 command and the output displays that interface Serial0/0 is up, line protocol is up.
What does "line protocol is up" specifically indicate about the interface?

A. The cable is attached properly.
B. CDP has discovered the connected device.
C. Keepalives are being received on the interface.
D. A carrier detect signal has been received from the connected device.
E. IP is correctly configured on the interface.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 360
Refer to the exhibit. Which statement is correct regarding the configuration shown?

A. This will not work as the subnet mask on serial interfaces must be /30.
B. What is shown as being configured would be considered a default route.
C. This configuration creates a bidirectional path between RouterA and RouterB.
D. The command ip route 172.16.1.0 255.255.255.0 s0/0/0 would provide similar routing functionality.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 361
How can an administrator determine if a router has been configured when it is first powered up?

A. A configured router prompts for a password.
B. A configured router goes to the privileged mode prompt.
C. An unconfigured router goes into the setup dialog.
D. An unconfigured router goes to the enable mode prompt.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 362
Refer to the exhibit. Which statement is correct regarding the results shown for the show interface s0/0/0 command?

```
RouterA# show interface s0/0/0
Serial0/0/0 is administratively down, line protocol is down
  Hardware is GT96K Serial
  Internet address is 10.12.12.1/28
  MTU 1500 bytes, BW 1544 Kbit, DLY 20000 usec,
     reliability 255/255, txload 1/255, rxload 1/255
  Encapsulation HDLC, loopback not set
  Keepalive set (10 sec)
  Last input never, output 00:00:14, output hang never
  Last clearing of "show interface" counters 5d15h
  Input queue: 0/75/0/0 (size/max/drops/flushes); Total output drops: 81071
  Queueing strategy: fifo
  Output queue: 0/40 (size/max)
  5 minute input rate 0 bits/sec, 0 packets/sec
  5 minute output rate 0 bits/sec, 0 packets/sec
     0 packets input, 0 bytes, 0 no buffer
     Received 0 broadcasts, 0 runts, 0 giants, 0 throttles
     0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
     145 packets output, 5084 bytes, 0 underruns
     0 output errors, 0 collisions, 4 interface resets
     0 output buffer failures, 0 output buffers swapped out
     0 carrier transitions
     DCD=down  DSR=up  DTR=down  RTS=down  CTS=down
```

A. The subnet mask for this interface is 255.255.255.248.
B. The subnet mask for this interface is 255.255.255.252.
C. The IP address that is configured on s0/0/0 is a public address.
D. This interface can be enabled by issuing a no shutdown command.
E. The default encapsulation protocol for a Cisco serial interface is PPP.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 363
Which of the following commands enables a network administrator to verify the application layer connectivity between source and destination?

A. ping
B. telnet
C. traceroute
D. verify
E. trace

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 364
An administrator previously changed the encapsulation on a synchronous serial line and saved the configuration. Now the administrator wants to restore the encapsulation back to the default. What action can the administrator do to return the interface back to its default encapsulation?

A. Change the encapsulation to ARPA.
B. Configure the interface for HDLC encapsulation.
C. Reboot the router and allow it to reload the configuration.
D. Issue the shutdown then no shutdown commands to reset the encapsulation on the interface.
E. Remove the cable and plug it back in to allow the router to autonegotiate encapsulation settings.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 365
WAN data link encapsulation types include which of the following? (Choose two.)

A. T1
B. Frame Relay
C. DSL
D. PPP
E. ISDN

Correct Answer: BD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 366
Regarding the extended ping command, which of the statements below are true? (Choose three)

A. The extended ping command is supported from user EXEC mode.
B. The extended ping command is available from privileged EXEC mode.
C. With the extended ping command you can specify the TCP and UDP port to be pinged.
D. With the extended ping command you can specify the timeout value.
E. With the extended ping command you can specify the datagram size.

Correct Answer: BDE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 367
Which sequence of actions will allow telneting from a user's PC to a router using TCP/IP?

A. Connect the PC's COM port to the router's console port using a straight-through cable.

B. Connect the PC's COM port to the router's console port using a crossover cable.
C. Connect the PC's COM port to the router's Ethernet port using a straight-through cable.
D. Connect the PC's Ethernet port to the router's Ethernet port using a crossover cable.
E. Connect the PC's Ethernet port to the router's Ethernet port using a rollover cable.
F. Connect the PC's Ethernet port to the router's Ethernet port using a straight-through cable.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 368
Which Layer 1 devices can be used to enlarge the area covered by a single LAN segment? (Choose two.)

A. switch
B. router
C. NIC
D. hub
E. repeater
F. RJ-45 transceiver

Correct Answer: DE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 369
When troubleshooting a LAN interface operating in full duplex mode, which error condition can be immediately ruled out?

A. giants
B. no buffers
C. collisions
D. ignored
E. dribble condition

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 370
When you use the ping command to send ICMP messages across a network, what's the most common request/reply pair you'll see? (Select one answer choice)

A. Echo request and Echo reply
B. ICMP hold and ICMP send

C. ICMP request and ICMP reply
D. Echo off and Echo on

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 371
Which of the following statements describe the network shown in the graphic? (Choose two.)

A. There are two broadcast domains in the network.
B. There are four broadcast domains in the network.
C. There are six broadcast domains in the network.
D. There are four collision domains in the network.
E. There are five collision domains in the network.
F. There are seven collision domains in the network.

Correct Answer: AF
Section: (none)
Explanation

Explanation/Reference:

QUESTION 372
Which protocol provides best-effort delivery of user data in a network?

A. TCP
B. MAC
C. IP
D. ARP
E. SMTP

Correct Answer: C

Section: (none)
Explanation

Explanation/Reference:

QUESTION 373
If NVRAM lacks boot system commands, where does the router look for the Cisco IOS by default?

A. ROM
B. RAM
C. Flash
D. bootstrap
E. startup-config

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 374
Assuming a subnet mask of 255.255.248.0, three of the following addresses are valid host addresses. Which are these addresses? (Choose three.)

A. 172.16.9.0
B. 172.16.8.0
C. 172.16.31.0
D. 172.16.20.0

Correct Answer: ACD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 375
Which cloud service is typically used to provide DNS and DHCP services to an enterprise?

A. IaaS
B. DaaS
C. SaaS
D. PaaS

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 376

Which two pieces of information can be shared with LLDP TLVs? (Choose two)

A. device management address.
B. device type
C. spanning-tree topology
D. routing configuration
E. access-list configuration

Correct Answer: AB
Section: (none)
Explanation

Explanation/Reference:
Explanation:
TLV advertises a single type of information such as its device ID, type or management addresses.

QUESTION 377
Which symptom most commonly indicates that two connecting interfaces are configured with a duplex mismatch?

A. the spanning-tree process shutting down
B. collisions on the interface
C. an interface with a down/down status
D. an interface with an up/down status

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 378
Which statement about upgrading a cisco ios device with TFTP is True?

A. The Cisco IOS device must be on the same lan as the TFTP server
B. The operation is performed in passive mode
C. The operation is performed in an unencrypted format
D. The operation is performed in active mode

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 379
Which two statements about UDP are true? (Choose two)

A. It can transmit data at a rate higher than the path capacity
B. It uses a three-way handshake to ensure that traffic is transmated properly
C. It guarantees packet delivery
D. it includes protection against duplicate packets

E. it can be used for multicast and broadcast traffic

Correct Answer: AE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 380
Which two types of information are held in the mac address table ?

A. destination ip addresses
B. protocols
C. port numbers
D. mac address
E. source ip address

Correct Answer: CD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 381
Which command can you enter in a network switch configuration so that learned mac addresses are saved in configuration as they connect?

A. Switch(confg-if)#Switch port-security
B. Switch(confg-if)#Switch port-security Mac-address sticky
C. Switch(confg-if)#Switch port-security maximum 10
D. Switch(confg-if)#Switch mode access

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 382
Which two security appliances will you use in a network? (Choose two.)

A. ATM
B. IDS
C. IOS
D. IOX
E. IPS
F. SDM

Correct Answer: BE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 383
Which NTP type designates a router without an external referee clock as an authoritative time source ?

A. Client
B. Server
C. peer
D. master

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 384
Which command can you enter to re enable cisco discovery protocol on a local router after it has been disabled?

A. Router (config)# cdp run
B. Router (config-if)# cdp run
C. Router (config)# cdp enable
D. Router (config-if)# cdp enable

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 385
Which three options are switchport configuration that can always avoid duplex mismatch errors between two switches? (Choose three.)

A. Set both sides of the connection to half duplex.
B. Set one side of the connection to auto-negotiate and the other side to full duplex.
C. Set both sides of the connection to auto-negotiate.
D. Set one side of the connection to auto-negotiate and the other side to half duplex.
E. Set one side of the connection to full ruplex and the other side to half duplex.
F. Set both sides of the connection to full duplex.

Correct Answer: ACF
Section: (none)
Explanation

Explanation/Reference:

QUESTION 386

In which CLI configuration mode can you configure the hostname of a device?

A. line mode
B. interface mode
C. global mode
D. router mode

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 387
What are the two minimum required components of a DHCP binding? (Choose two.)

A. a DHCP pool
B. an exclusion list
C. a hardware address
D. an IP address
E. an ip-helper statement

Correct Answer: CD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 388
Which two options are features of the extended ping command? (Choose two.)

A. it can send packets from a specified interface or ip address
B. it can resolve the destination host name
C. it can ping multiple hosts at the same time
D. it can count the number of hops to the remote host
E. it can send a specified number of packets

Correct Answer: AE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 389
For which two protocols can PortFast alleviate potential host startup issues? (Choose two.)

A. DHCP
B. DNS
C. OSPF
D. RIP

E. CDP

Correct Answer: AE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 390
Which major ipv6 address type is supported in ipv4 but rarely used ?

A. Broadcast
B. multicast
C. unicast
D. anycast

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 391
Which two steps must you perform to enable router-on-a-stick on a switch? (Choose two.)

A. Configure an IP route to the VLAN destination network.
B. Connect the Router to a trunk port.
C. Configure full duplex.
D. Configure the subinterface number exactly the same as the matching VLAN.
E. Assign the access port to a VLAN.

Correct Answer: BC
Section: (none)
Explanation

Explanation/Reference:

QUESTION 392
Which two statements about syslog logging are true? (Choose two.)

A. Messages are stored external to the device.
B. The size of the log file is dependent on the resources of the device.
C. Syslog logging is disabled by default.
D. Messages can be erased when the device reboots.
E. Messages are stored in the internal memory of the device.

Correct Answer: AD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 393
Which address block identifies all link-local address?

A. fc00::/7
B. fc00::/8
C. fe80::/10

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 394
Which two options are fields in an ethernet frame ? (Choose two)

A. destination ip address
B. source ip address
C. type
D. frame check sequence
E. header

Correct Answer: CD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 395
Refer to Exhibit. If Computer A is sending traffic to computer B, which option is the source ip address when a packet leaves R1 on interface F0/1?

A. IP address of the R2 interface F0/1

B. Ip address of computer B
C. Ip address of R1 interface F0/1
D. Ip address of Computer A

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 396
For which two reasons was RFC 1918 address space define? (Choose two)

A. to preserve public IPv4 address space
B. to reduce the occurrence of overlapping IP addresses
C. to preserve public IPv6 address space
D. reduce the size of ISP routing tables
E. to support the NAT protocol

Correct Answer: DE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 397
In which two circumstances are private IPv4 addresses appropriate? (Choose two)

A. on internal hosts that stream data solely to external resources
B. on hosts that communicates only with other internal hosts
C. on the public-facing interface of a firewall
D. on hosts that require minimal access to external resources
E. to allow hosts inside an enterprise to communicate in both directions with hosts outside the enterprise

Correct Answer: BD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 398
Which type of routing protocol operates by using first information from each device peers?

A. link-state protocols
B. distance-vector protocols
C. path-vector protocols
D. exterior gateway protocols

Correct Answer: A
Section: (none)

Explanation

Explanation/Reference:

QUESTION 399
Refer to the exhibit. You have determined that computer A cannot ping computer B.
Which reason for the problem is most likely true?

A. The computer A subnet mask is incorrect.
B. The computer B subnet mask is incorrect.
C. The computer B default gateway address is incorrect.
D. The computer A default gateway address is incorrect.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 400
Which two statements about access points are true? (Choose Two)

A. They can provide access within enterprises and to the public.
B. in Most cases, they are physically connected to other network devices to provide network connectivity.
C. They can protect a network from internal and external threats.
D. Most access points provide Wi-Fi and Bluetooth connectivity.
E. They must be hardwired to a modem.

Correct Answer: BD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 401
When is a routing table entry identified as directly connected?

A. when the local router is in use as the network default gateway
B. when the network resides on a remote router that is physically connected to the local router
C. when an interface on the route is configure with an ip address and enabled
D. when the route is statically assigned to reach a specific network

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 402
Which type of cable must you use to connect two devices with mdi interfaces?

A. rolled
B. crossover
C. crossed
D. straight through

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 403
Which statements is true about Router on Stick?

A. When a router has multiple subnets on a single physical link.
B. When a router has single subnet on multiple physical links.
C. When a router has multiple interface on single physical links.
D. When a router has single interface on multiple physical links

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 404
Which two options are the best reasons to use an ipv4 private ip space?

A. to manage routing overhead
B. to implement nat
C. to connect applications
D. to enable intra-enterprise communication
E. to conserve global address space

Correct Answer: DE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 405
Which two options are benefits of dhcp snooping?

A. it prevents dhcp reservations
B. it simplifies the process of adding DHCP Servers to the network
C. it prevents the deployment of rogue DHCP Servers
D. it prevents static reservations
E. it tracks the location of hosts in the network

Correct Answer: CE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 406
Which three options are fields in a basic ethernet data frame?

A. preamble
B. time to live
C. version
D. header checksum
E. length type
F. frame check sequence

Correct Answer: AEF
Section: (none)
Explanation

Explanation/Reference:

QUESTION 407
Which two statements about the extended traceroute command are true? (Choose two.)

A. It can be repeated automatically at a specified interval.
B. It can validate the reply data.
C. It can use a specified TTL value.
D. It can send packets from a specified interface or IP address.
E. It can use a specified ToS.

Correct Answer: CD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 408
Which functionality does split horizon provide?

A. it Prevents routing loops in distance vector protocols
B. it Prevents switching loops in distance vector protocols
C. it Prevents switching loops in link-state protocols
D. it Prevents routing loops in link-state protocols

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 409
Which two statements about RIPv2 are true? (Choose two)

A. It must be manually enabled after RIP is configured as the routing protocol
B. It uses multicast address 224.0.0.2 to share routing information between peers
C. its default administrative distances 120
D. It is a link-state routing protocol
E. It is an EGP routing protocol

Correct Answer: AC
Section: (none)
Explanation

Explanation/Reference:

QUESTION 410
Which command can be used from a router to verify the Layer 3 path to a host?

A. tracert address
B. traceroute address
C. telnet address
D. ssh address

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 411
Which statement about Cisco Discovery Protocol is true?

A. It is a Cisco-proprietary protocol.
B. It runs on the network layer.

C. It can discover information from routers, firewalls, and switches.
D. It runs on the physical layer and the data link layer.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 412
Under which circumstance is a router on a stick most appropriate?

A. When the router must route a single across multiple physical links.
B. When the router must route multiple subnets across multiple physical links.
C. When the router must route a single across single physical links.
D. When the router must route multiple subnets across single physical links.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 413
Dhcp client in the back can not communicate with hosts in the outside of their subnet?

ip dhcp pool my pool***
network 192.168.10.0/27
domain name cisco.com
****name server some ip***

A. need to activate dhcp pool
B. need to configure default gateway
C. other option
D. other option

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 414
What command can you enter to configure the switch as an authoritative ntp server with site id : XXXXXXXX?

A. Switch(config)#ntp master 3
B. Switch(config)#ntp peer IP 193.168.2.2
C. Switch(config)#ntp server IP 193.168.22
D. Switch(config)#ntp source IP 193.168.2.2

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 415
Router R1 has a static router that is configured to a destination network. A directly connected inference is configured with an ip address in the same destination network. Which statement about R1 is true ?

A. It refuses to advertise the dynamic route to other neighbors
B. It sends a withdrawal signal to the neighboring router
C. It disables the routing protocol
D. It prefers the static route

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 416
To enable router on a stick on a router subinterface, which two steps must you perform? choose two

A. configure full duplex and speed
B. configure a default to route traffic between subinterfaces
C. configure the subinterface with an ip address
D. configure encapsulation dot1q
E. configure an ip route to the vlan destination network

Correct Answer: CD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 417
Which command can you enter to determine the addresses that have been assigned on a DHCP Server?

A. Show ip DHCP database.
B. Show ip DHCP pool.
C. Show ip DHCP binding.
D. Show ip DHCP server statistic.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 418
Which statement about recovering a password on a cisco router is true?

A. it requires physical access to the router
B. the default reset password is cisco
C. a factory reset is required if you forget the password
D. it requires a secure SSL/VPN connection

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 419
While troubleshooting a DCHP client that is behaving erratically, you discover that the client has been assigned the same IP address as a printer that is a staticIP address. Which option is the best way to resolve the problem?

A. Configurea static route to the client.
B. Assign the client the same IP address as the router.
C. Move the client to another IP subnet
D. Move the printer to another IP subnet.
E. Reservethe printer IP address.

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:

QUESTION 420
Which symptom can cause duplex mismatch problem?

A. no earner
B. collisions on interface
C. giants
D. CRC errors

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 421
Which type of routing protocol operates by exchanging the entire routing information ?

A. distance vector protocols
B. link state protocols
C. path vector protocols

D. exterior gateway protocols

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 422
Which port security violation mode allows traffic from valid mac address to pass but block traffic from invalid mac address?

A. protect
B. shutdown
C. shutdown vlan
D. restrict

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 423
Which IPsec security protocol should be used when confidentiality is required?

A. MD5
B. PSK
C. AH
D. ESP

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 424
Which definition of a host route is true?

A. A route that is manually configured
B. A route used when a destination route is missing.
C. A route to the exact /32 destination address
D. Dynamic route learned from the server.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 425
Which statement about DHCP snooping is true?

A. it blocks traffic from DHCP servers on untrusted interfaces.
B. it can be configured on switches and routers.
C. it allows packets from untrusted ports if their source MAC address is found in the binding table.
D. it uses DHCPDiscover packets to identify DHCP servers.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 426
Which three commands are required to enable NTP authentication on a Cisco router? (Choose three)

A. ntp peer
B. ntp max-associations
C. ntp authenticate
D. ntp trusted-key
E. ntp authentication-key
F. ntp refclock

Correct Answer: CDE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 427
Which IPv6 routing protocol uses multicast group FF02::9 to send updates?

A. static
B. RIPng
C. OSPFv3
D. IS-IS for IPv6

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 428
Which three statements about IPv6 address fd14:920b:f83d:4079::/64 are true? (Choose three)

A. The subnet ID is 14920bf83d
B. The subnet ID is 4079
C. The global ID is 14920bf83d

D. The address is a link-local address
E. The global ID is 4079
F. The address is a unique local address

Correct Answer: BCF
Section: (none)
Explanation

Explanation/Reference:

QUESTION 429
Which three statements about DWDM are true? (Choose three)

A. It allows a single strand of fiber to support bidirectional communications
B. It is used for long-distance and submarine cable systems
C. It can multiplex up to 256 channels on a single fiber
D. It supports both the SDH and SONET standards
E. Each channel can carry up to a 1-Gbps signal
F. It supports simplex communications over multiple strands of fiber

Correct Answer: CDE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 430
Which tunneling mechanism embeds an IPv4 address within an IPv6 address?

A. Teredo
B. 6to4
C. 4to6
D. GRE
E. ISATAP

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 431
Which protocol does ipv6 use to discover other ipv6 nodes on the same segment?

A. CLNS
B. TCPv6
C. NHRP
D. NDP
E. ARP

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 432
What is the most efficient subnet mask for a point to point ipv6 connection?

A. /127
B. /128
C. /64
D. /48
E. /32

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 433
Which type of secure MAC address must be configured manually?

A. dynamic
B. bia
C. static
D. sticky

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 434
Where does a switch maintain DHCP snooping information ?

A. in the MAC address table
B. in the CAM table
C. in the DHCP binding database
D. in the VLAN database

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 435

Which two statements about IPv6 address 2002:ab10:beef::/48 are true?(choose two)

A. The embedded IPv4 address can be globally routed.
B. It is used for an ISATAP tunnel
C. The embedded IPv4 address is an RFC 1918 address
D. The MAC address 20:02:b0:10:be:ef is embedded into the IPv6 address
E. It is used for a 6to4 tunnel

Correct Answer: AE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 436
If a router has four interfaces and each interface is connected to four switches, how many broadcast domains are present on the router?

A. 1
B. 2
C. 4
D. 8

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 437
What are three parts of an IPv6 global unicast address? (Choose three.)

A. an interface ID that is used to identify the local host on the network
B. an interface ID that is used to identify the local network for a particular host.
C. a subnet ID that is used to identify networks inside of the local enterprise site
D. a global routing prefix that is used to identify the network portion of the address that has been provided by an ISP
E. a global routing prefix that is used to identify the portion of the network address provided by a local administrator

Correct Answer: ACD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 438
What is true about Cisco Discovery Protocol?

A. it discovers the routers, switches and gateways.
B. it is network layer protocol

C. it is physical and data link layer protocol
D. it is proprietary protocol

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 439
What layer of the OSI Model is included in TCP/IP Model's INTERNET layer?

A. Application
B. Session
C. Data Link
D. Presentation
E. Network

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:

QUESTION 440
What are types of IPv6 static routes? (Choose Three.)

A. Recursive routes
B. Directly connected routes
C. Fully specified routes
D. Advertised routes
E. Virtual links
F. Redistributed routes

Correct Answer: ABC
Section: (none)
Explanation

Explanation/Reference:

QUESTION 441
How to configure RIPv2? (Choose Two.)

A. Enable RIP
B. Connect RIP to WAN interface
C. Enable no auto-summary
D. Enable authentication

Correct Answer: AC
Section: (none)

Explanation

Explanation/Reference:

QUESTION 442
Which value must the device send as its username when using CHAP to authenticate with the remote peer site id: XXXXXXXX over a PPP link?

A. The automatically generated user name
B. The local host name
C. The user name defined by the administrator
D. The host name of the remote device.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 443
Which statement about IPv6 link-local addresses is true ?

A. They must be configured on all IPv6 interface
B. They must be globally unique
C. They must be manually configured
D. They are advertised globally on the network

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 444
Which configuration can be used with PAT to allow multiple inside address to be translated to a single outside address?

A. Dynamic Routing
B. DNS
C. Preempt
D. overload

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 445
Which command can you enter to create a NAT pool of 6 addresses?

A. Router(config)#ip nat pool test 175.17.12.69 175.17.12.74 prefix-length 24
B. Router(config)#ip nat pool test 175.17.12.69 175.17.13.74 prefix-length 16
C. Router(config)#ip nat pool test 175.17.12.66 175.17.12.72 prefix-length 8
D. Router(config)#ip nat pool test 175.17.12.69 175.17.12.76 prefix-length 8

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 446
Which IEEE mechanism is responsible for the authentication of devices when they attempt to connect to a local network?

A. 802.1x
B. 802.11
C. 802.2x
D. 802.3x

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 447
Which two statements about floating static routes are true? (Choose two)

A. They are routes to the exact /32 destination address
B. They are used when a route to the destination network is missing
C. They have a higher administrative distance than the default static route administrative distance
D. They are used as back-up routes when the primary route goes down
E. They are dynamic routes that are learned from a server

Correct Answer: CD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 448
Which networking Technology is currently recognized as the standard for computer networking?

A. System network architecture
B. Transmission control protocol/Internet protocol
C. Open system Interconnect
D. Open network architecture

Correct Answer: B
Section: (none)

Explanation

Explanation/Reference:

QUESTION 449
Which command you enter on a switch to display the ip address associated with connected devices?

A. Show cdp neighbors detail
B. Show cdp neighbor
C. Show cdp interface
D. Show cdp traffic

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 450
Which Type of ipv6 unicast ip address is reachable across the internet?

A. Unique Local
B. Compatible
C. Link local
D. Globa

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 451
Which value indicate the distance from the ntp authoritative time source?

A. priority
B. location
C. layer
D. stratum

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 452
If you want multiple hosts on a network, where do you configure the setting?

A. in the IP protocol

B. in the multicast interface
C. in the serial interface
D. in the global configuration

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 453
What will you do if you forgot the password of your router?

A. remote connection
B. physical connection is needed

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 454
Where information about untrusted hosts are stored?

A. CAM table
B. Trunk table
C. MAC table
D. binding database

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
A switch device builds and maintains the DHCP snooping binding database, which contains information about untrusted hosts with leased IP addresses.

QUESTION 455
In which two situations should you use out-of-band management?

A. when a network device fails to forward packets
B. when you require ROMMON access
C. when management applications need concurrent access to the device
D. when you require administrator access from multiple locations
E. when the control plane fails to respond

Correct Answer: AB
Section: (none)
Explanation

Explanation/Reference:

QUESTION 456
What happens when an 802.11a node broadcasts within the range of an 802.11g access point?

A. The access point transmits, but the node is unable to receive.
B. A connection occurs
C. Both the node and the access point are unable to transmit.
D. The node transmits, but the access point is unable to receive.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 457
Which two command can you enter to display the current time sources statistics on devices ? (Choose two.)

A. Show ntp associations.
B. Show clock details
C. Show clock.
D. Show time.
E. Show ntp status

Correct Answer: AE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 458
Which three encapsulation layers in the OSI model are combined into the TCP/IP application layer? (Choose three)

A. Session
B. transport
C. presentation
D. application
E. data-link
F. network

Correct Answer: ACD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 459
Which effect of the passive-interface command on R1 is true?

```
R1
Interface FastEthernet0/0
  description site id: XXXXXXXX
  ip address 172.16.0.1 255.255.0.0

Interface FastEthernet0/1
  description site id: XXXXXXXX
  ip address 172.17.0.1 255.255.0.0

router rip
  passive-interface FastEthernet0/0
  network 172.16.0.0
  network 172.17.0.0
  version 2
```

A. It prevents interface Fa0/0 from sending updates.
B. Interface Fa 0/0 operates in RIPv1 mode.
C. It removes the 172.16.0.0 network from all updates on all interfaces on R1.
D. It removes the 172.16.0.0 network from all updates on all interfaces on R1.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 460
What is the command to see assigned address in DHCP?

A. show ip DHCP statistic
B. show ip dhcp pool
C. show ip dhcp binding
D. show ip dhcp database

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 461
DRAG DROP
Drag and drop each broadcast IP address on the left to the Broadcast Address column on the right. Not all options are used.

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 462

DRAG DROP
Drag and drop the DNS lookup components from the left onto the correct functions on the right.

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 463
DRAG DROP
Drag and drop the MAC address types from the left onto the correct descriptions on the right?

Select and Place:

Answer Area

dynamic secure MAC address	cleared from the CAM table when the switch reboots
nonsecure MAC address	configured with the switchport port-secure mac-address command
static secure MAC address	dynamically learned addresses that can be retained permanently
sticky MAC address	requires access VLAN configuration only

Correct Answer:

Answer Area

	nonsecure MAC address
	sticky MAC address
	dynamic secure MAC address
	static secure MAC address

Section: (none)
Explanation

Explanation/Reference:

QUESTION 464
DRAG DROP
Drag and Drop the descriptions of IP protocol transmissions from the left onto the correct IP traffic types on the right.

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 465
DRAG DROP

Refer to the exhibit. You are configuring the router to provide Static NAT for the web server.
Drag and drop the configuration commands from left onto the letters that correspond to its position in the configuration on the right.

Select and Place:

Answer Area

ip address 172.16.1.1 255.255.255.0	position A
ip address 45.83.2.214 255.255.255.240	position B
ip nat inside	position C
ip nat inside source lst 1 interface s0 overload	position D
ip nat inside source static tcp 172.16.1.2 80 45.83.2.214 80 extendable	position E
ip nat outside	position F

Correct Answer:

Answer Area

	ip address 172.16.1.1 255.255.255.0
	ip nat inside
	ip address 45.83.2.214 255.255.255.240
	ip nat outside
	ip nat inside source static tcp 172.16.1.2 80 45.83.2.214 80 extendable
	ip nat inside source lst 1 interface s0 overload

Section: (none)
Explanation

Explanation/Reference:

QUESTION 466
Which two statements about Ethernet frame formats are true? (Choose two.)

A. The FCS is appended to the VLAN tag.
B. The receiving MAC always recalculates the FCS.
C. The VLAN tag precedes the Length/Type field.
D. The second bit in the Destination Address field indicates whether the address is an individual or group address.
E. The first bit in the Destination Address field determines whether the address is handled globally or locally.
F. The preamble checks the FCS to identify the start and end of a packet.

Correct Answer: BC
Section: (none)
Explanation

Explanation/Reference:

QUESTION 467
By default, which speed does an interface attempt to negotiate if IEEE autonegotiation is enabled on only one side of a link?

A. speed of the neighbor side of the link
B. slowest supported speed of the interface
C. fastest supported speed of the interface
D. average supported speed of the two interfaces

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 468
How can you prevent a MAC address from aging out of the MAC address table?

A. Clear the MAC address table.
B. Disable the MAC address aging timer.
C. Manually enter the MAC address into the MAC address table.
D. Enable IGMP snooping.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 469
Which statement about DNS lookup on a Cisco router is true?

A. When it is disabled, the administrator must use IP addresses to reach to network devices.
B. When it is enabled, the router queries a public DNS, by default, for network device name resolution.
C. When it is disabled, reachability to end users and hosts must be addressed through their IP addresses.
D. It is disabled by default.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 470
Which two statements about VTP are true? (Choose two.)

A. The VLANs can be configured on a VTP server without a VTP domain name.
B. Each switch sends the VTP password in every summary-advertisement.
C. IOS switches cannot turn off VTP.
D. VTP negotiates a secure channel for VTP advertisements.
E. The switches must be reloaded when you update from VTP version 1 to VTP version 2.

Correct Answer: BC
Section: (none)
Explanation

Explanation/Reference:
Reference: https://www.cisco.com/c/en/us/support/docs/lan-switching/vtp/10558-21.html#vtp_pw

QUESTION 471
Which statement about 802.1q trunking is true?

A. It supports PVST for load balancing.
B. The native VLAN must have the same configuration on each connected device.

C. It can support a maximum of 1000 VLANs.
D. It is a Cisco-proprietary technology.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Reference: https://www.cisco.com/c/en/us/support/docs/lan-switching/8021q/17056-741-4.html

QUESTION 472
Which metric or metrics does RIP use to determine the routing table metric for a route?

A. bandwidth and delay
B. bandwidth and hop count
C. bandwidth
D. hop count

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 473
Which configuration must you perform to enable VTP in a switching domain?

A. Configure a switch as a client.
B. Configure a switch with a VTP domain.
C. Configure a switch with VTP mode off to serve as the server switch.
D. Configure a switch in transparent mode.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 474
Which technology allows multiple VLANs to be extended across the network without the need for Layer 3 routing?

A. trunk ports
B. MPLS TE tunnels
C. access ports
D. IPsec tunnels

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 475
Which statement about RIPv2 is true?

A. Unless the **network** command is issued under the routing process, all interfaces are passive by default.
B. It is a classful routing protocol.
C. Auto summary is disabled by default.
D. The RIP routing protocol must be enabled on the router before RIPv2 is configured.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 476
For which reason does a DNS client use a DNS server?

A. to assign an IP address
B. to verify network connectivity
C. to resolve an FQDN to an IP address
D. to resolve an IP address to an FQDN

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 477
Which function must be configured on a router so that it can dynamically resolve device names?

A. hostname
B. DHCP server
C. local user database
D. DNS server

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 478
Which statement about the **ipv6 enable** interface mode command is true?

A. It allows the administrator to manually assign an IPv6 address to the interface.
B. It disables IPv4 addresses on the interface.
C. It dynamically assigns an IPv6 link-local address to the interface based on router advertisements.

D. It dynamically assigns an IPv6 link-local address to the interface based on the MAC address of the interface.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 479
For which reason does an administrator implement static routing?

A. to provide quick convergence when links fail on the enterprise network
B. to simplify network maintenance in a large enterprise
C. to reduce overhead on a stub router that requires access only to a default route
D. to reduce the amount of time required to deploy new devices on the network

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 480
DRAG DROP
Drag and drop each cable type from the left onto the correct description on the right.

Select and Place:

coaxial	defined by the 100BASE-BX standard
crossover	defined by the 10BASE5 standard
fiber optic	joins a network device to another device of the same type
twisted pair	used as the 10/100/1000BASE-TX cable for Ethernet
USB	used primarily to connect peripheral devices to a PC

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 481
Which statement about debug commands is true?

A. They can display interface statistics.
B. They must be run in user exec mode.
C. They provide output from all processes running on the device.
D. Executing debug commands can result in high CPU usage on the router.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 482
Which feature can you use to access all file systems on a device?

A. routing
B. syslog
C. service policies
D. IFS

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 483

A company has placed a networked PC in a lobby so guests can have access to the corporate directory. A security concern is that someone will disconnect the directory PC and re-connect their laptop computer and have access to the corporate network. For the port servicing the lobby, which two configuration steps should be performed on the switch to prevent this? (Choose two.)

A. Create the port as an access port and statically assign the MAC address to the address table.
B. Enable port security.
C. Configure the switch to discover new MAC addresses after a set time of inactivity.
D. Set the port security aging time to 0.
E. Create the port as a protected port and statically assign the MAC address to the address table.

Correct Answer: AB
Section: (none)
Explanation

Explanation/Reference:

QUESTION 484
Which field in a routing table entry is used to identify the immediate destination of a packet?

A. next-hop
B. metric
C. administrative distance
D. destination network

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 485
Which statement about the difference between static and dynamic routing is true?

A. Static routes are more trusted by the router than dynamic routes.
B. Only dynamic routes are manually installed in the routing table.
C. Only static routes allow for quick failover in a topology change.
D. Only dynamic routes take the same path through the network each time a packet is sent.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 486
Refer to the exhibit.

```
R1(config)#ip dhcp pool dhcp
R1(dhcp-config)#network 172.30.10.0 /24
R1(dhcp-config)#default-router 172.30.10.254
R1(dhcp-config)#dns-server 172.30.10.253
R1(dhcp-config)#exit
```

Which change can you make to this router configuration to avoid potential conflicts when it serves as a DHCP server?

A. Change the value of the **default-router** command to an IP address different from the broadcast address of the subnet.
B. Add the **excluded-addresses** command to exclude 172.30.10.253 and 172.30.10.254 from the dhcp pool.
C. Assign a public IP address to the dhcp pool.
D. Remove the **dns-server** command and configure DNS locally on the hosts.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 487
Which wildcard mask is equivalent to "any"?

A. 0.0.0.0
B. 11111111
C. 00000000
D. 255.255.255.255

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 488
How many bits comprise an IPv6 address?

A. 32 bits
B. 64 bits
C. 128 bits
D. 256 bits

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 489
How many primary IPv4 addresses can be assigned to an interface?

A. 8
B. 2
C. 1
D. Unlimited

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 490
DRAG DROP
Drag and drop the steps in the frame-rewrite process from the left into the correct sequence on the right.

Select and Place:

The frame encapsulates the packet.	step 1
The frame is created.	step 2
The packet is forwarded to the next hop.	step 3
The router recalculates the IPv4 header checksum.	step 4
The router receives the packet.	step 5

Correct Answer:

The router receives the packet.

The router recalculates the IPv4 header checksum.

The frame is created.

The frame encapsulates the packet.

The packet is forwarded to the next hop.

Section: (none)
Explanation

Explanation/Reference:

QUESTION 491
Which IPv6 address type is used publicly for hosts?

A. unique local
B. IPv4 mapped
C. global unicast
D. link local

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 492
Which two types of Ethernet networks are compatible with star topologies? (Choose two.)

A. 10BASE-T
B. 100BASE-T
C. 10BASE5
D. 10BASE2

Correct Answer: AB
Section: (none)
Explanation

Explanation/Reference:

QUESTION 493

Which counter indicates the total number of frames that a switch port failed to transmit?

A. frame
B. collisions
C. output errors
D. packet outputs

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 494
Which feature allows the network administrator to view the hardware of a Cisco peer device connected to an interface?

A. RIP
B. CDP
C. VTP
D. STP

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 495
Which equipment is needed to connect hosts between VLAN 10 and VLAN 20?

A. hub
B. switch
C. router
D. firewall
E. APC

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 496
Which tool can you use to view each Layer 3 hop along the path to a destination?

A. traceroute
B. SSH
C. ping
D. Cisco Discovery Protocol

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 497
What is the default administrative distance for a connected route?

A. 1
B. 0
C. 5
D. 20

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 498
Refer to the exhibit.

```
R1#show ip route
 Codes: L - local, C - connected, S - static, R - RIP,
      M - mobile, B - BGP
      D - EIGRP, EX - EIGRP external, O - OSPF,
      IA - OSPF inter area
      N1 - OSPF NSSA external type 1, N2 - OSPF NSSA
      external type 2
      E1 - OSPF external type 1, E2 - OSPF external type 2
      i - IS-IS, su - IS-IS summary, L1 - IS-IS level-1,
      L2 - IS-IS level-2
      ia - IS-IS inter area, * - candidate default, U -
      per-user static route
      o - ODR, P - periodic downloaded static route, H - NHRP
      + - replicated route, % - next hop override
```

Which two statements about the route source code in a routing table are true? (Choose two.)

A. It identifies the destination of the route.
B. It identifies the source type of the route.
C. Routes with code C are preferred.

D. It appears after the source network address.
E. Routes with code S are always preferred.

Correct Answer: BC
Section: (none)
Explanation

Explanation/Reference:

QUESTION 499
Which field in a basic Ethernet frame is 6 bytes long and always indicates an individual address with a 0 as the leftmost bit?

A. source address
B. SOF
C. FCS
D. destination address

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 500
How many VLANs can be carried across an access port?

A. 8
B. 1
C. 4096
D. 1024

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 501
Why might an enterprise choose to address hosts using RFC 1918 address space?

A. to remove the need for a Layer 3 device
B. to conserve assigned public addresses
C. to route to an external administrative domain
D. to access the Internet

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 502
Which option is one component of an Ethernet frame?

A. sequence number
B. checksum
C. TTL
D. frame check sequence

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 503
Which syslog severity level logs information messages?

A. 2
B. 6
C. 0
D. 4

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 504
Which network configuration allows a switch to send traffic from multiple VLANs over a single link to a router that routes between the VLANs?

A. spanning-tree
B. virtual trunking
C. router-on-a-stick
D. port channel

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 505
DRAG DROP
Drag and drop the descriptions of routing protocols from the left onto the correct routing types on the right.

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:
Explanation:
Reference: http://www.ciscopress.com/articles/article.asp?p=2180210&seqNum=5

QUESTION 506

Which subnet mask allows for up to 126 hosts in a single Layer 2 domain?

A. 255.255.128.0
B. 255.255.255.0
C. 255.255.255.128
D. 255.255.255.224

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 507
What is the default administrative distance of OSPF?

A. 90
B. 100
C. 110
D. 120

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Administrative distance is the feature that routers use in order to select the best path when there are two or more different routes to the same destination from two different routing protocols.
Administrative distance defines the reliability of a routing protocol. Each routing protocol is prioritized in order of most to least reliable (believable) with the help of an administrative distance value.

Default Distance Value Table
This table lists the administrative distance default values of the protocols that Cisco supports:

Route Source	Default Distance Values
Connected interface	0
Static route	1
Enhanced Interior Gateway Routing Protocol (EIGRP) summary route	5
External Border Gateway Protocol (BGP)	20
Internal EIGRP	90
IGRP	100
OSPF	110
Intermediate System-to-Intermediate System (IS-IS)	115
Routing Information Protocol (RIP)	120
Exterior Gateway Protocol (EGP)	140
On Demand Routing (ODR)	160
External EIGRP	170
Internal BGP	200
Unknown*	255

QUESTION 508
SIMULATION
Lab Simulation – OSPF
A sporting goods manufacturer has decided to network three (3) locations to improve efficiency in inventory control. The routers have been named to reflect the location: Boston, Frankfurt, Lancaster. The necessary networking has been completed at each location, and the routers have been configured with single area OSPF as the routing protocol. The Boston router was recently installed but connectivity is not complete because of incomplete routing tables. Identify and correct any problem you see in the configuration.
Note: The OSPF process must be configured to allow interfaces in specific subnets to participate in the routing process

Correct Answer: Please see explanation below
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The question mentioned Boston router was not configured correctly or incomplete so we should check this router first. Click on Host B to access the command line interface (CLI) of Boston router.

`Boston>enable` (type **cisco** as its password here)
`Boston#show running-config`

```
Boston#show running-config
<output omitted>
!
router ospf 2
 log-adjacency-changes
 network 192.168.4.0 0.0.0.255 area 0
 network 192.168.155.0 0.0.0.3 area 0
!
<output omitted>
```

First, remember that the current OSPF Process ID is 2 because we will need it for later configuration. Next notice that in the second “network” command the network and wildcard mask are 192.168.155.0 and 0.0.0.3 which is equivalent to 192.168.155.0 255.255.255.252 in term of subnet mask. Therefore this subnetwork’s

range is from 192.168.155.0 to 192.168.155.3 but the ip address of s0/0 interface of Boston router is192.168.155.5 which don't belong to this range → this is the reason why OSPF did not recognize s0 interface of Boston router as a part of area 0.
So we need to find a subnetwork that s0 interface belongs to.
IP address of S0 interface: 192.168.155.5/30
Subnet mask: /30 = 1111 1111.1111 1111.1111 1111.1111 1100
Increment: 4
Network address (which IP address of s0 interface belongs to):

192.168.155.4 (because 4 * 1 = 4 < 5)
Therefore we must use this network instead of 192.168.155.0 network

```
Boston#configure terminal
Boston(config)#router ospf 2
Boston(config-router)#no network 192.168.155.0 0.0.0.3 area 0
Boston(config-router)#network 192.168.155.4 0.0.0.3 area 0
Boston(config-router)#end
Boston#copy running-config startup-config
```

Finally, you should issue a ping command from Boston router to Lancaster router to make sure it works well.

```
Boston#ping 192.168.43.1
```

QUESTION 509
Click on the correct location or locations in the exhibit.

This task requires the use of various **show** commands from the CLI of Router1 to answer 5 multiple-choice questions. This does **not** require any configuration.

NOTE: The show running-configuration and the show startup-configuration commands have been disabled in this simulation.

To access the multiple-choice questions, click on the numbered boxes on the right of the top panel.

There are 5 multiple-choice questions with this task. Be sure to answer all 5 questions before leaving this item.

eSim Professional v1.0.1.9 **00:00:58**

What is the subnet broadcast address of the LAN connected to Router1?

A. 192.168.200.15
B. 192.168.200.31
C. 192.168.200.63
D. 192.168.200.127
E. 255.255.255.255

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Explanation:
User the "show ip interface brief" command

```
CiscoTerminal

Press RETURN to get started.

Router1>en
Router1#show ip int brief
Interface              IP-Address      OK? Method Status                Protocol
Fastethernet0/0        unassigned      YES unset  administratively down  down

Fastethernet0/1        192.168.200.23  YES manual  up                    up

Serial0/0              10.11.12.13     YES manual  administratively down  down

Serial0/1              unassigned      YES unset  administratively down  down

Router1#_
```

User the "show interface fa0/1" command

```
CiscoTerminal

Router1#show int fa0/1
FastEthernet0/1 is Up, line protocol is Up
   Hardware is Lance, address is 0010.7b81.4e2d(bia 0010.7b81.4e2d)
   Internet address is 192.168.200.23/28
    MTU 1500 bytes, BW 100000 Kbit, DLY 100 usec,
     reliability 255/255, txload 1/255, rxload 1/255
   Encapsulation ARPA, loopback not set
   Keepalive set (10 sec)
   Full-duplex, 100Mb/s, 100BaseTX/FX
   ARP type: ARPA, ARP Timeout 04:00:00
   Last input 00:00:27, output 00:00:02, output hang never
   Last clearing of "show interface" cointers never
   Queueing strategy: fifo
   output queue 0/40, 0 drops ; input queue 0/75, 0 drops
   5 minute input rate 0 bits/sec, 0 packets/sec
   5 minute output rate 0 bits/sec, 0 packets/sec
      3581 packets input, 1202219 bytes, 0 no buffer
      Received 3581 broadcasts, 0 runts, 0 giants, 0 throttles
      0 input errors, 0 CRC, 0 frame, 0 overrun, 0 ignored, 0 abort
      0 input packets with dribble condition detected
      24213 packets output, 2101260 bytes, 0 underruns
      0 output errors, 0 collisions, 12 interface resets
      0 babbles, 0 late collision, 0 deferred
 --More-- _
```

From the output we learn that the ip address of the FastEthernet0/1 interface of Router1 is 192.168.200.23 and the subnet mask is /28.
-> The broadcast address of this subnetwork is 192.168.200.31

QUESTION 510
When you configure router# ipnat pool 10.10.10.1 10.10.10.20 255.255.255.0

A. nat pool
B. dynamic nat
C. nat translation
D. dhcp pool

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 511
Refer to the exhibit, what is the metric for the router from R1 to 192.168.10.1?

```
R1#show ip route
Codes: C - connected, S - static, R - RIP, M -mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1 , E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1  - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route

Gateway of last resort is 192.168.14.4 to network 0.0.0.0

C   192.168.12.0/24 is directly connected, FastEthernet0/0
C   192.168.13.0/24 is directly connected, FastEthernet0/1
C   192.168.14.0/24 is directly connected, FastEthernet1/0
    192.168.10.0/24 is variably subnetted, 3 subnets, 3 masks
O      192.168.10.0/24 [110/2] via 192.168.14.4, 00:02:01, FastEthernet1/0
O      192.168.10.32/27 [110/11] via 192.168.13.3, 00:00:02, FastEthernet0/1
O      192.168.0.0/16 [110/2] via 192.168.15.5, 00:05:01, FastEthernet1/1
D      192.168.10.1/32 [50/52778] via 192.168.12.2, 00:03:44, FastEthernet0/0
0*E2 0.0.0.0/0 [110/1] via 192.168.14.4, 00:00:10, FastEthernet1/0
```

A. 2
B. 90
C. 110
D. 52778

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 512
Refer to the exhibit.

```
ip dhcp pool test
    network 192.168.10.0 /27
    domain-name cisco.com
    dns-server 172.16.1.1 172.16.2.1
    netbios-name-server 172.16.1.10 172.16.2.10
```

After you apply the given configuration to a router, the DHCP clients behind the device cannot communicate with hosts outside of their subnet. Which action is most likely to correct the problem?

A. Configure the dns server on the same subnet as the clients
B. Activate the dhcp pool
C. Correct the subnet mask
D. configure the default gateway

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 513
Refer to the exhibit.

```
R1
interface FastEthernet0/0
    ip address 172.16.10.1 255.255.255.224

interface FastEthernet0/1
    ip address 172.16.10.33 255.255.255.240

router rip
    network 172.16.0.0.
    no auto-summary
```

After you apply the given configuration to R1, you determine that it is failing to advertise the 172.16.10.32/27 network. Which action most likely to correct the problem?

A. Enable passive interface
B. Enable RIPv2
C. Enable manual summarization

D. Enable autosummarization.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 514
Refer to exhibit.

```
R1#show ip route
Codes: C - connected, S - static, R - RIP, M -mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1 , E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1  - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route

Gateway of last resort is 192.168.14.4 to network 0.0.0.0

C   192.168.12.0/24 is directly connected, FastEthernet0/0
C   192.168.13.0/24 is directly connected, FastEthernet0/1
C   192.168.14.0/24 is directly connected, FastEthernet1/0
    192.168.10.0/24 is variably subnetted, 3 subnets, 3 masks
O      192.168.10.0/24 [110/2] via 192.168.14.4, 00:02:01, FastEthernet1/0
O      192.168.10.32/27 [110/11] via 192.168.13.3, 00:00:02, FastEthernet0/1
O      192.168.0.0/16 [110/2] via 192.168.15.5, 00:05:01, FastEthernet1/1
D      192.168.10.1/32 [50/52778] via 192.168.12.2, 00:03:44, FastEthernet0/0
0*E2 0.0.0.0/0 [110/1] via 192.168.14.4, 00:00:10, FastEthernet1/0
```

What Administrative distance has route to 192.168.10.1?

A. 1
B. 90
C. 110
D. 120

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 515
Refer to the exhibit.

```
R1#show ip route
Codes: C - connected, S - static, R - RIP, M -mobile, B - BGP
       D - EIGRP, EX - EIGRP external, O - OSPF, IA - OSPF inter area
       N1 - OSPF NSSA external type 1, N2 - OSPF NSSA external type 2
       E1 - OSPF external type 1 , E2 - OSPF external type 2
       i - IS-IS, su - IS-IS summary, L1  - IS-IS level-1, L2 - IS-IS level-2
       ia - IS-IS inter area, * - candidate default, U - per-user static route
       o - ODR, P - periodic downloaded static route

Gateway of last resort is 192.168.14.4 to network 0.0.0.0

C   192.168.12.0/24 is directly connected, FastEthernet0/0
C   192.168.13.0/24 is directly connected, FastEthernet0/1
C   192.168.14.0/24 is directly connected, FastEthernet1/0
    192.168.10.0/24 is variably subnetted, 3 subnets, 3 masks
O      192.168.10.0/24 [110/2] via 192.168.14.4, 00:02:01, FastEthernet1/0
O      192.168.10.32/27 [110/11] via 192.168.13.3, 00:00:02, FastEthernet0/1
O      192.168.0.0/16 [110/2] via 192.168.15.5, 00:05:01, FastEthernet1/1
D      192.168.10.1/32 [50/52778] via 192.168.12.2, 00:03:44, FastEthernet0/0
0*E2 0.0.0.0/0 [110/1] via 192.168.14.4, 00:00:10, FastEthernet1/0
```

If R1 sends traffic to 192.168.10.45 the traffic is sent through which interface?

A. FastEthernet0/1
B. FastEthernet0/0
C. FastEthernet1/0
D. FastEthernet1/1

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 516
If router R1 knows a static route to a destination network and then learns about the same destination network through a dynamic routing protocol, how does R1 respond?

A. It refuses to advertise the dynamic route to other neighbors
B. It sends a withdrawal signal to the neighboring router
C. It disables the routing protocol
D. It prefers the static route

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 517

Refer to the exhibit, you determine that Computer A cannot ping Computer B.

Which reason for the problem is most likely true?

A. The Subnet mask for Computer A is incorrect
B. The default gateway address for Computer A is incorrect
C. The subnet mask for computer B is incorrect.
D. The default gateway address for computer B is incorrect

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 518
DRAG DROP
Drag and drop each feature on the left on to the correct routing type on the right.

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 519
If a switch received a frame while forwarding others, how frame would be handled?

A. It will interrupt the frames
B. The switch will put the frame in a queue
C. Will be forwarded at the same time with the current frame
D. The new frame will forward first

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 520
What does not belong to Syslog?

A. host name
B. severity
C. timestamp
D. message

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 521
What does a switch use for communication between VLANs?

A. STP
B. CDP
C. VTP
D. Etherchannel

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 522
What is the maximum size of an Ethernet frame that uses 802.1Q tagging?

A. 1514 bytes
B. 128 bytes
C. 68 bytes
D. 1522 bytes

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 523
Which of the following is true about port security?

A. In stick, port retrain dynamically learned
B. Configure spanning destination
C. The default configuration with max 10
D. Not supported by VLAN

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 524
Which option does the route 0.0.0.0/0 represent?

A. Route with the lowest administrative distance
B. Gateway of last resort
C. Null route
D. Empty routing table

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 525
What is the purpose of a standard access list?

A. to filter traffic based on destination address
B. to deny traffic
C. to filter traffic based on source address

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 526
If you are in VLAN 10 and it gets a packet from VLAN 2 with 802.1q enabled, what does it do with the packet?

A. Drops the packet
B. forwards it to VLAN 2
C. configures the port to handle traffic from VLAN 2
D. adds it to the VLAN database

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 527
Which forwarding technology stores destination addresses in the cache?

A. MPLS
B. Cisco Express Forwarding
C. process switching
D. fast switching

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 528
Which type of network topology requires each network node to be connected to one another?

A. Ring
B. Star
C. Mesh
D. Bus

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 529
A router receives identical prefixes from OSPF, EIGRP, RIP and the same route is configured statically.

Which route does the router use to forward traffic?

A. Static route
B. RIP route
C. EIGRP route
D. OSPF route

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 530
Which device can be used to extend the LAN without using layer3 device?

A. Access point
B. Switch
C. Wireless controller
D. Firewall

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 531
Which option describes a standard role that a firewall plays in an enterprise network?

A. It can permit unauthorized packets to pass to less secure segments of the network
B. It can decide which packets can traverse from a less secure segment of the network to a more secure
C. It can forward packets based on rules that are predetermined by IEEE standards
D. It can deny all packets from entering an administrative domain.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 532
Which cables could be used for star topology (Choose two)

A. 10 base2
B. 10 base5
C. 100Base-T
D. 10Base-T

Correct Answer: CD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 533
FILL BLANK

What is the binary of the IPv6 multicast address?

Correct Answer: 11111111
Section: (none)
Explanation

Explanation/Reference:

Explanation:
IPv6 multicast addresses are distinguished from unicast addresses by the value of the high-order octet of the addresses: a value of 0xFF (binary 11111111) identifies an address as a multicast address; any other value identifies an address as a unicast address

QUESTION 534
What is the lowest AD?

A. OSPF
B. EIGRP
C. IS-IS
D. IBGP
E. RIPv2

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 535
Assume all the routing protocol have the same length prefix, what would the router prefer?

A. OSPF
B. EIGRP
C. CONNECTED
D. BGP

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 536
Which statement describes dynamic routing correctly?

A. more secure than static
B. high scaling for large network
C. easier to configure than static route
D. built for small networks

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 537
FILL BLANK

What would the router use as metrics when having different routing protocol in the routing table?

Correct Answer: Prefix length
Section: (none)
Explanation

Explanation/Reference:

QUESTION 538
Which statement about standard access list is true?

A. They have an implicit permit statement at the end to allow all traffic
B. They can use either a wildcard mask or a subnet mask to identify host
C. They can be identified by a number from 1 to 99
D. They must be placed close to the source of traffic

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 539
Which of the following item is used to establish telnet session by having the host name?

A. DNS lookup
B. Ping
C. Syslog
D. ARP

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 540
Which of the following command can be used to access all the files in a system?

A. syslog
B. IFS
C. ping
D. NTP

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 541
For which important purpose was IPv6 addressing developed?

A. To reduce the number of public IP addresses on the internet
B. To replace network address translation
C. To remove the need for classless inter-domain routing
D. To relieve the shortage of public IP addresses on the internet

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 542
What does the 0.0.0.0/0 mean in a routing table?

A. wildcard
B. empty routing table
C. default route
D. Gateway of last resort

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 543
A host is attempting to communicate with a server from an application layer. The connection has failed, what would be the first layer to start from the troubleshooting standpoint?

A. network
B. Application
C. physical
D. session

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 544
DRAG DROP
The left describes the types of cables, while the right describes the purposes of the cables. Drag the items on the left to the proper locations. (Not all items can be used.)

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 545
Which value is of primary importance when a router populates its routing table for unique routes?

A. Administrative distance

B. Prefix length
C. Network address
D. Metric

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 546
How is the MAC address table of a switch populated?

A. When the switch receives an Ethernet frame with a new destination MAC address, it installs the destination MAC address and the ingress switch port in the MAC address table
B. When the switch receives an Ethernet frame with a new source MAC address, it installs the source MAC address and the ingress switch port in the MAC address table
C. When the switch receives an Ethernet frame with a new destination MAC address, it installs the destination MAC address and the egress switch port in the MAC address table
D. When the switch receives an Ethernet frame in which the source and destination MAC address are new, it installs the destination MAC address and the ingress switch port in the MAC address table

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 547
Which statement is true about port-security violations is true?

A. When a violation occurs on a switch port in restrict mode, the switch port continues to accept traffic from unknown MAC address until the administrator manually disables it.
B. When a violation occurs on a switch port in protect mode, it sends a syslog notification message.
C. A port in the err-disabled state must be re-enabled manually, if recovery is disabled.
D. When a switch port is in protect mode, it allows traffic from unknown MAC address until it has learned the maximum allowable number of MAC addresses.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 548
Which statement is true about static and dynamic routing?

A. Only static routes are shared between connected interfaces
B. Dynamic routing is more scalable than static routing
C. Only dynamic routes are secure
D. Static routing is easier to maintain in a large network than dynamic routing.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 549
Which statement about native VLAN traffic over 802.1Q trunk is true?

A. It is discarded by STP
B. It is placed is a high-priority queue
C. It is tagged with a value of 1
D. It is untagged

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 550
Which protocol can identify connected devices within a mixed-vendor infrastructure?

A. Virtual terminal protocol
B. Network time protocol
C. Link level discovery protocol
D. Cisco discovery protocol

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 551
Which interface configuration is used with a router-on-a-stick configuration?

A. VRF
B. Subinterfaces
C. PIM sparse mode
D. Passive-interface

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 552
Where is private IPv4 addressing used?

A. On the endpoints of a VPN tunnel that traverses outside an administrator domain
B. At a remote site that connects over public infrastructure to a hub
C. Within an enterprise
D. Over the internet

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 553
Which protocol allows VLANs to be dynamically configured between multiple switches?

A. IGMP
B. STP
C. VTP
D. 802.1Q

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 554
Client A cannot reach client B by its hostname. Which reason for the problem is most likely true?

A. The connected router is using the default domain lookup configuration
B. The hostname for client B is missing from the connected router
C. A DNS server has been misconfigured
D. Telnet has been disabled on the connected router.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 555
Which first step must a client perform to connect to an internal host when the hostname is known, but the IP address is unknown?

A. The client sends the host name in a DNS reply to a DNS server, and the DNS server responds with the host IP address
B. The client exchanges IP address information with a DNS server on the same LAN
C. The client looks up the hostname in the ARP table to determine the IP address
D. The client sends the host name in a DNS request to a DNS server, and the DNS server responds with the host IP address.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:
Explanation:
When a client knew about the hostname but not the IP address, it needs to resolve the hostname to the IP address by sending a DNS request to its DNS server.
Notice that the ARP table is responsible for resolving IP address to MAC address only. It has nothing to do with the hostname.

QUESTION 556
FILL BLANK

Which route option can be used to back-up in case of fail?

Correct Answer: floating route
Section: (none)
Explanation

Explanation/Reference:

QUESTION 557
Which of the following true about access points?

A. It used physically to connect network devices
B. It is used as a router
C. Provide full duplex communication
D. It is a layer 2 device used to extend the LAN coverage to wireless devices

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 558
Which of the following used to identify the immediate destination?

A. Administrative distance
B. Metric
C. Next hop
D. Destination network

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 559
Which of the following options could be used on router to prevent the reassignment of an IP address statically?

A. Pool
B. Lease
C. Client ID
D. Exclude address

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 560
A router with a default setting deployed, how will act if it received mistype command?

A. Disable DNS look up
B. Recognizing the command
C. Try to resolve the command to an IP address
D. Try to correct the command
E. Show error message

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 561
Which symbol ping of the following is for unknown packet?

A. .
B. *
C. ?
D. U

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 562
Which of the following is true about dynamic routing?

A. Reduces CPU of the network
B. More secure than static
C. Complicates the maintenance
D. Allow fast convergence when a failure happen

Correct Answer: D

Section: (none)
Explanation

Explanation/Reference:

QUESTION 563
What does RIPv2 use to determine the best route?

A. Hop count
B. Administrative distance
C. Bandwidth

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 564
Which of the following are two local host characters?

A. 32/prefix
B. 255.255.255.0
C. The administrative distance is 0
D. Dynamically learned

Correct Answer: AC
Section: (none)
Explanation

Explanation/Reference:

QUESTION 565
Why does a host use a DNS server?

A. To make a DNS client request to server
B. To resolve IP to FQDN
C. To resolve FQDN to IP
D. To assign IP

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 566
Which six-byte field in a basic Ethernet frame must be an individual address?

A. FCS

B. SOF
C. Sa
D. Da

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 567
Which component is part of an Ethernet frame?

A. checksum
B. TTL
C. sequence number
D. frame check sequence

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 568
Which two statements about 802.1Q are true? (Choose two.)

A. It is an open-standard trunking protocol
B. It is a Cisco-proprietary trunking protocol
C. It inserts a 4-byte identifying tag in the Ethernet frame after the source MAC address field.
D. It encapsulates the original data frame inside a trunking header.
E. It uses a 20-bit label to identify packets within a trunk.

Correct Answer: AC
Section: (none)
Explanation

Explanation/Reference:

QUESTION 569
Multicast IP addresses can be grouped into which two address-range assignments? (Choose two.)

A. registered
B. dynamic
C. GLOP
D. source-specific multicast
E. private

Correct Answer: AB
Section: (none)

Explanation

Explanation/Reference:

QUESTION 570
Which hashing algorithm does NTP use for its authentication keys?

A. MD5
B. AES-256
C. 3DES
D. SHA

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 571
Which prefix length is most appropriate to support an Ipv6 point-to-point link without wasting IPv6 address space?

A. /31
B. /64
C. /127
D. /128

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 572
Which command do you enter on a router running RIP so that it advertises a route on the same interface on which it received the route?

A. no auto-summary
B. no ip split-horizon
C. passive-interface default
D. ip rip v2-broadcast

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 573
Which description refers to administrative distance?

A. the advertised metric to reach a network
B. the cost of a link between two neighboring routers
C. the cost to reach a network that is administratively set
D. a measure of the trustworthiness of a routing information source

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 574
Which two configuration steps will prevent an unauthorized PC from accessing the corporate network? (Choose two.)

A. set the port security aging time to 0
B. create the port as a protected port and statically assign the MAC address to the address table
C. configure the switch to discover new MAC addresses after a set time of inactivity
D. enable port security on the switch
E. create the port as an access port and statically assign the MAC address to the address table

Correct Answer: DE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 575
Which command do you enter to configure a device as an authoritative time server?

A. ntp authenticate
B. ntp server 127.0.0.1
C. ntp source 127.0.0.1
D. ntp master 1

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 576
Which difference between TCP and UDP is true?

A. Only TCP orders the packets that are transmitted.
B. Only UDP retransmits packets to ensure delivery.
C. Only TCP has eliminated error checking.
D. Only UDP requires recipients to acknowledge packet receipt.

Correct Answer: A
Section: (none)

Explanation

Explanation/Reference:

QUESTION 577
Which device mode must you use to recover a password on a Cisco IOS device?

A. privileged EXEC
B. global configuration
C. user EXEC
D. ROMmon

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 578
What is the default number of secure MAC addresses for an interface configured with port security?

A. 1
B. 255
C. 1042
D. 3072

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Reference: https://www.cisco.com/c/en/us/td/docs/switches/lan/catalyst4500/12-2/20ewa/configuration/guide/conf/port_sec.html

QUESTION 579
Which value is calculated by the sender and receiver of a frame to determine whether the frame has been damaged in transit?

A. the runt value
B. the CRC value
C. the giant value
D. the collision value

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 580
Which value does RIPv2 use to calculate its route metric?

A. delay
B. bandwidth
C. hop count
D. reliability

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 581
A router is deployed with the default factory settings. If a user on the router mistypes a command, which option is the result?

A. The router immediately returns an error message.
B. The router recognizes the mistake and discards the request.
C. The router autocorrects the mistyped command.
D. The router attempts to resolve the command to an IP address.
E. The router disables DNS lookup.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 582
Which statement about the default Cisco Discovery Protocol configuration is true?

A. CDPv1 is disabled on FastEthernet interfaces.
B. CDPv2 advertisements are unicast.
C. CDPv1 is enabled on Frame Relay subinterfaces.
D. CDPv2 advertisements are broadcast.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 583
Which information is missing from a default syslog message?

A. HOSTNAME
B. SEVERITY
C. MESSAGE
D. TIMESTAMP

Correct Answer: A
Section: (none)

Explanation

Explanation/Reference:
Reference: https://www.cisco.com/c/en/us/td/docs/routers/access/wireless/software/guide/SysMsgLogging.html

QUESTION 584
Which statement about a router-on-a-stick configuration is true?

A. It is most appropriate for use on large networks with both Layer2 and Layer3 switches.
B. It can perform 802.1q encapsulation.
C. It can act as a multilayer switch.
D. It can classify packets for QoS.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 585
Which two statements about the default configuration of a Cisco IOS router are true? (Choose two.)

A. In privileged EXEC mode, the console times out after 10 minutes of inactivity.
B. The loopback 0 interface is enabled.
C. The first connected interface becomes the gateway of last resort.
D. The **enable password** password and **enable secret** password are both set to cisco.
E. The hostname of the device is displayed in lower-case letters only, even if you specify capital letters.
F. The default hostname is Router.

Correct Answer: AF
Section: (none)
Explanation

Explanation/Reference:

QUESTION 586
Which Cisco IOS feature can dynamically assign IP addresses to hosts?

A. DHCP Relay
B. TFTP
C. DNS
D. DHCP

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 587
Which value represents a host route?

A. 192.168.1.0/30
B. 192.168.1.0/24
C. 192.168.1.2/31
D. 192.168.1.0/32

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 588
Which two statements are true about the operation of a full-duplex Ethernet network? (Choose two.)

A. There are no collisions in full-duplex mode.
B. A dedicated switch port is not required for each full-duplex node.
C. Ethernet hub ports are preconfigured for full-duplex mode.
D. The device network card and the switch port must be capable of operating in full-duplex mode.
E. In a full-duplex environment, the host network card must check for the availability of the network media before transmitting.

Correct Answer: AD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 589
How are MAC addresses removed from a MAC address table?

A. They are removed automatically if they remain inactive for the duration of the switch aging timer.
B. They are removed automatically on a FIFO basis when the address-table limit has been reached.
C. They must be manually cleared from the table.
D. They are removed automatically if they remain inactive for the duration of the global MAC address timer.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 590
Which IPv6 address does a device use for neighbor discovery?

A. the link-local address
B. the multicast address
C. the unique local address
D. the global unicast address

Correct Answer: A

Section: (none)
Explanation

Explanation/Reference:

QUESTION 591
Which statement about a router on a stick is true?

A. It requires encapsulation to be configured on subinterfaces.
B. It requires encapsulation to be configured on the main interface.
C. The VLAN tag is randomly assigned as a frame exists the interface.
D. A single VLAN can traverse the link.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 592
If a router receives a route 192.168.1.0/24 from peers running OSPF and EIGRP, how does the router forward traffic destined to that network?

A. It uses the path with the lowest metric.
B. It always uses the path learned from OSPF because OSPF is a vendor-neutral protocol.
C. It load-balances traffic across both paths.
D. It always uses the path learned from EIGRP because EIGRP has a lower administrative distance.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 593
Which static route can be used to forward a packet that is destined to 192.168.1.23?

A. ip route 192.168.1.16 255.255.255.252 192.168.255.1
B. ip route 192.168.1.0 255.255.255.240 192.168.255.1
C. ip route 192.168.0.0 255.255.255.0 192.168.255.1
D. ip route 192.168.1.20 255.255.255.252 192.168.255.1

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 594
How does a switch handle a frame in which it detects an error in the frame check sequence?

A. It updates the frame check sequence and forwards the frame to its destination.
B. It discards the damaged frame without further action.
C. It forwards the frame to its destination unchanged.
D. It discards the damaged frame and requests the sender to retransmit it.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 595
For what reason do you use a standard access list?

A. to filter traffic from identified source addresses
B. to deny traffic to identified destination addresses
C. to load-balance traffic over different interfaces
D. to identify traffic to be label-switched through the network
E. to deny traffic to unidentified destination addresses

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 596
Which statement about the enable password is true?

A. The space character is not supported.
B. It is not stored in a secured format.
C. It can be up to 32 characters long.
D. It is stored in a secured format.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:
Reference: https://www.cisco.com/c/en/us/td/docs/ios/12_2/security/command/reference/fsecur_r/srfpass.html

QUESTION 597
Which type of route is the most trusted?

A. BGP
B. OSPF
C. static
D. connected

Correct Answer: D
Section: (none)

Explanation

Explanation/Reference:

QUESTION 598
You have configured two hosts that are connected to a single switch, but reside in different VLANs. Which statement about the configuration is true?

A. The two hosts are unable to communicate without a router.
B. The two hosts can communicate with ICMP.
C. The two hosts are unable to communicate without a trunk port.
D. The two hosts are unable to communicate without a hub.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 599
Which circumstance causes a security violation on a switch port with port security enabled?

A. The maximum number of secure MAC addresses is reached on a secure port and an unidentified MAC address attempts an ingress connection.
B. A configured MAC address attempts an ingress connection on a different port in a different VLAN.
C. The minimum number of secure MAC addresses is configured on a secure port and an unidentified MAC address attempts an ingress connection.
D. A minimum number of secure MAC addresses has filled the dynamic table.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Reference: https://www.cisco.com/c/en/us/td/docs/switches/lan/catalyst6500/ios/12-2SX/configuration/guide/book/port_sec.html

QUESTION 600
Which option is the default time zone used on Cisco devices?

A. CST
B. UTC
C. EST
D. GMT
E. PST

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 601
Which statement about wireless access points is true?

A. They are Layer 2 devices that are used to extend a LAN to wireless clients.
B. They provide full duplex connectivity to host devices.
C. They are used as routers between LANs in a wireless network.
D. They are used to physically connect host devices to the wireless network.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 602
Which two characteristics of plenum cable are true? (Choose two.)

A. It is more fire-resistant than nonplenum cable.
B. It can be installed above a drop-down ceiling without additional safety precautions.
C. It is less fire-resistant than nonplenum cable.
D. When it burns, it may release more toxins than nonplenum cable.
E. It requires additional safety precautions when installed above a drop-down ceiling.

Correct Answer: AB
Section: (none)
Explanation

Explanation/Reference:

QUESTION 603
DRAG DROP

Drag and drop the logging configuration commands from the left onto the logging locations they configure on the right.

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 604
All protocols on a network are using their default administrative distances with no redistribution. In which two different ways can you modify them so that OSPF and RIPv2 learned routes are preferred over EIGRP-learned routes? (Choose two.)

A. Change the OSPF administrative distance to 5.
B. Change the RIP administrative distance to 70.
C. Change the EIGRP administrative distance to 70.
D. Change the RIP administrative distance to 100.
E. Change the EIGRP administrative distance to 100.

Correct Answer: AB
Section: (none)
Explanation

Explanation/Reference:

QUESTION 605
For which two reasons might you choose to configure dynamic routing instead of static routing on a router? (Choose two.)

A. The router is part of a stub network.
B. The router needs access only to a single default route.
C. Dynamic routing requires less router configuration throughout the network than static routing.
D. The network is growing intermittently.
E. Dynamic routing updates are more secure than static routing updates.

Correct Answer: CD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 606
DRAG DROP

Refer to the exhibit. Drag and drop the TCP header fields from the left into the correct positions on the right.

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 607
Which three values must you specify to resequence an IP access list? (Choose three.)

A. access list name
B. increment
C. starting sequence number
D. interface
E. dynamic access list number
F. ending sequence number

Correct Answer: ABC
Section: (none)
Explanation

Explanation/Reference:
Reference: https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/sec_data_acl/configuration/12-2sx/sec-data-acl-12-2sx-book/sec-acl-seq-num-persistent.pdf

QUESTION 608
Which two syslog configuration commands do you use to log warnings to the syslog server? (Choose two.)

A. **logging trap level informational**
B. **logging trap level alerts**
C. **logging trap level notice**
D. **logging trap level critical**
E. **logging trap level error**

Correct Answer: AC

Section: (none)
Explanation

Explanation/Reference:

QUESTION 609
Under which circumstance should a network administrator implement only outgoing NAT towards an ISP?

A. when traffic that originates inside the network must be routed to internal hosts
B. when the network has few public IP addresses and many private IP addresses that require outside access
C. when the network must route UDP traffic
D. when traffic that originates outside the network must be routed to internal hosts

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 610
DRAG DROP

Drag and drop the logging types from the left onto the correct descriptions on the right. Not all logging types are used.

Select and Place:

Correct Answer:

Section: (none)

Explanation

Explanation/Reference:

QUESTION 611
DRAG DROP

Drag and drop the DNS-lookup configuration commands from the left onto the correct effects on the right.

Select and Place:

ip domain-lookup	adds an entry to the host table
ip domain-name	completes the FQDN of the DNS server
ip host switch_1 192.168.0.1	displays address-mapping information
ip name-server	enables host-to-IP-address translation
show hosts	specifies the IP address of the DNS server

Correct Answer:

	ip host switch_1 192.168.0.1
	ip domain-name
	show hosts
	ip domain-lookup
	ip name-server

Section: (none)
Explanation

Explanation/Reference:

QUESTION 612

```
show ip route
192.168.1.0/24 is variably subnetted, 2 subnets, 2 masks
```

Refer to the exhibit. Router R1 produced this partial output running on a current IOS. Which two statements about R1 and its network environment are true? (Choose two.)

A. R1 has a combination of local and connected routes totaling two subnets.
B. R1 has learned a maximum of four networks via routing protocols.
C. R1 has a maximum of two connected subnets including local route.
D. R1 has learned at least one network via routing protocols.
E. R1 has a network environment that supports a maximum of 16 hosts.

Correct Answer: CD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 613
Which command or command sequence do you enter to install a default route into a router that is configured with the **no ip routing** command?

A. **ip route 0.0.0.0 0.0.0.0**
B. **router rip**
ip default-gateway
C. **ip default-network**
D. **ip default-gateway**

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 614
For which reason is a DHCP client unable to reach a host in different subnet?

A. The client and its gateway router have been assigned different subnet masks.
B. The client has been configured with only one DNS server.
C. DNS lookup has been disabled on the gateway router.
D. The client is connected to a switch in the same VLAN as its gateway router.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 615
Which command can you enter in ROMmon to bypass the password in the router startup configuration?

A. **confreg 0x2142**
B. **configure terminal**
C. **config-register 0x2102**
D. **reset**

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 616
Which two ACL types support IP Access List Entry Sequence Numbering? (Choose two.)

A. named
B. reflexive
C. firewall
D. dynamic
E. standard

Correct Answer: AE
Section: (none)
Explanation

Explanation/Reference:
Reference: https://www.cisco.com/c/en/us/td/docs/ios/sec_data_plane/configuration/guide/convert/sec_data_acl_15_1_book/sec_ip_entry_numbrng.pdf

QUESTION 617
DRAG DROP

Drag and drop the IOS commands from a RIP router from the left onto the correct effects on the right.

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 618
In which two scenarios do you implement private IPv4 IP addresses? (Choose two.)

A. on the webmail portal of an organization
B. on the connection that a mobile device uses for application updates
C. to connect network equipment between different IDFs
D. for the VPN solution that end users use to connect to the local network
E. on an application server that connects to a local database server

Correct Answer: CE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 619
Which two statements about IPv6 SLAAC are true? (Choose two.)

A. The default gateway of the host is configured during the SLAAC process.
B. It is incompatible with DHCP.
C. The host uses the EUI-64 algorithm to calculate the first 64 bits of the destination IPv6 address from the MAC address.
D. It has a built-in mechanism to identify duplicate IP addresses on the network.
E. The host sends a router advertisement message to begin the SLAAC process.

Correct Answer: AD
Section: (none)
Explanation

Explanation/Reference:
Reference: https://www.cisco.com/en/US/docs/switches/lan/catalyst3850/software/release/3se/

consolidated_guide/
b_consolidated_3850_3se_cg_chapter_0101011.html#concept_F73953BD3DA84DE1B5709025CD1D5209

QUESTION 620
In which network topology does each network device have a direct physical connection to every other device?

A. point-to-multipoint
B. mesh
C. bus
D. star

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 621
How does an access port configured for VLAN 10 handle an incoming packet with an 802.1q tag for VLAN 2?

A. It drops the packet.
B. It dynamically configures the port to accept traffic on VLAN 2.
C. It adds VLAN 2 to the VLAN database.
D. It forwards the packet to a port on VLAN 2.
E. It processes the packet and places it in a queue for future delivery.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 622
Which IPv4 address type can reach each node on a network?

A. unicast
B. anycast
C. broadcast
D. multicast

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 623
Which two commands must you apply to a router to configure it as a router-on-a-stick? (Choose two.)

A. **spanning-tree portfast**
B. **encapsulation**

C. **vtp domain**
D. **vtp transparent**
E. **ip address**

Correct Answer: BE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 624
DRAG DROP

Drag and drop the VLAN port membership modes from the left onto the correct descriptions on the right.

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 625
Which command do you enter to assign all untagged packets on a trunk to VLAN 999?

A. **switchport trunk pruning vlan add 999**
B. **switchport trunk allowed vlan 999**
C. **switchport trunk native vlan 999**

D. **swtichport trunk allowed vlan add 999**

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 626

```
% Unrecognized host or address, or protocol not running
```

Refer to the exhibit. You ping a remote device by name from a router, and the ping operation returns this response. What are two reasons for this problem? (Choose two.)

A. An ACL on the router blocked the ping.
B. A firewall blocked the ping.
C. The DNS server database does not include a record for the name.
D. The router is blacklisted by the DNS server.
E. Only one DNS server is configured on the router.

Correct Answer: CD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 627
DRAG DROP

Drag and drop the routing protocols from the left onto the default administrative distances on the right.

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 628
Which two IPv6 multicast groups are joined when an IPv6 address is configured on an interface? (Choose two.)

A. FF02::2
B. 2002::5
C. FF80::6
D. FF80::5
E. FF02::1

Correct Answer: AE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 629
Which two statements about administrative distance are true? (Choose two.)

A. The metric is used to determine which administrative distance is selected from the routing table.
B. The metric is calculated independently of the administrative distance.
C. It identifies the routing protocol priority.
D. It identifies the metric used for path calculation.
E. The metric uses the administrative distance to calculate a path.

Correct Answer: BC
Section: (none)
Explanation

Explanation/Reference:

QUESTION 630
DRAG DROP

Drag and drop the OSI model layers from the left onto the correct TCP/IP model layers on the right.

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 631
Which component of an Ethernet frame supports error detection?

A. EtherType
B. frame check sequence
C. 802.1Q tag
D. preamble

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 632
Which statement about port security on a trunk link is true?

A. It error-disables the port after 10 MAC addresses are statically configured.
B. It is not supported.
C. By default, it shuts down the port if it learns more than one MAC address.
D. When it is enabled, it disables the native VLAN configuration.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 633

Refer to the exhibit. If Host A pings Host B, which statement about the ping is true?

A. The router looks up the destination IP network of the ping in its MAC address table.
B. Host A encapsulates the packet within a frame before sending it.
C. The ping packet includes both the destination MAC address and the source address.
D. Host A sends the packet one byte at a time.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 634
DRAG DROP

A host is sending packets to a router. Drag and drop the steps in the packet-handling process from the left into the correct sequence on the right.

Select and Place:

A frame encapsulates the packet.	step 1
The destination IP address is checked.	step 2
The frame is transmitted.	step 3
The packet is created.	step 4
The packet is extracted from the frame.	step 5
The packet is forwarded to the exit interface.	step 6

Correct Answer:

	The packet is created.
	A frame encapsulates the packet.
	The destination IP address is checked.
	The frame is transmitted.
	The packet is extracted from the frame.
	The packet is forwarded to the exit interface.

Section: (none)
Explanation

Explanation/Reference:

QUESTION 635
DRAG DROP

Drag and drop the VTP terms from the left onto the correct descriptions on the right.

Select and Place:

VTP client mode	enables the administrator to set the VTP version for all switches in the domain
VTP pruning	forwards VTP advertisements out of a trunk port
VTP server mode	operates without the ability to delete VLANs
VTP transparent mode	removes VTP information from unknown unicast traffic on the VLAN
VTP version 1	supports Ethernet VLANs only

Correct Answer:

	VTP server mode
	VTP transparent mode
	VTP client mode
	VTP pruning
	VTP version 1

Section: (none)
Explanation

Explanation/Reference:

QUESTION 636
Which two attributes of a packet change at every router along the path from source to destination? (Choose two.)

A. destination IP address
B. source MAC address
C. packet MTU
D. source IP address
E. destination MAC address

Correct Answer: BE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 637

DRAG DROP

Drag and drop the components of a standard IPv4 access list entry from the left into the correct sequence on the right.

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 638
Which two statements about prefixes in a routing table are true? (Choose two.)

A. The router prefers longer prefixes over shorter prefixes.
B. The router prefers prefixes that have more bit positions for the host than for the network.
C. The router prefers the prefix that includes the most 1 bits in the subnet mask.
D. The router prefers shorter prefixes over longer prefixes.
E. The router prefers the prefix that includes the most 0 bits in the subnet mask.

Correct Answer: AC
Section: (none)
Explanation

Explanation/Reference:

QUESTION 639

```
switch-A#show mac address-table
                Mac Address Table
-------------------------------------------
Vlan    Mac Address     Type        Ports
------  ------------    ----------  -------
     1   0000.0000.0001 DYNAMIC     Fa0/1
Total Mac Addresses for this criterion: 1
```

Refer to the exhibit. If switch-A receives a frame with destination MAC address 0000.0000.0001 on its Fa0/1 interface, how does it process the frame?

A. It holds the packet until MAC address timer expires and then drops the frame.
B. It forwards the frame back out of interface Fa0/1.
C. It floods the frame to all interfaces except Fa0/1.
D. It drops the frame immediately.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 640
You recently applied a common configuration to several PCs on different VLANs. The PCs are connected to the same switch with a router-on-a-stick, but users report that the PCs cannot ping one another. Which two are possible reasons for the problem? (Choose two.)

A. The access ports on the PCs are misconfigured.
B. The native VLAN on the router is misconfigured.
C. The **ip default-network** command is misconfigured on the router.
D. The trunking protocol is configured incorrectly on the router subinterfaces.
E. The VLAN is configured incorrectly on the router subinterfaces.

Correct Answer: AE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 641
Which two statements about access ports are true? (Choose two.)

A. They can act as a host and a trunk port simultaneously.
B. They forward all 802.1Q packets to trunk ports.
C. An individual access port can transmit traffic for only one data VLAN.
D. Each individual access port can support multiple data VLANs.
E. They are assigned to VLAN 1 by default.

Correct Answer: CE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 642
Which two fields are used in TCP and UDP headers? (Choose two.)

A. urgent pointer
B. ACK number
C. checksum
D. length
E. padding

Correct Answer: CD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 643
Which two network device types perform the translation of internal IP addresses to external IP addresses? (Choose two.)

A. ACS
B. routers
C. bridges
D. WLCs

E. firewalls

Correct Answer: BE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 644

Refer to the exhibit. Which interface must be configured as the DHCP relay agent so that host A can receive an IP address from the DHCP server?

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

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 645
Which two fields are included in an Ethernet header? (Choose two.)

A. source MAC address
B. destination IP address
C. payload
D. Ether Type
E. source IP address

Correct Answer: AD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 646
Which three statements about a meshed topology are true? (Choose three.)

A. Every core device is connected to a distribution device.
B. Each access switch must be connected to at least one upstream distribution device and at least one core device.
C. Each distribution device is connected to exactly one core device.
D. Each access switch must be connected to exactly one upstream distribution device.
E. Every upstream distribution device is connected to an access switch.
F. Each access switch must be connected to at least two upstream distribution devices.

Correct Answer: AEF
Section: (none)
Explanation

Explanation/Reference:

QUESTION 647
You ping a remote device by name from a router, and the router you are using immediately displays a new prompt. What are two possible reasons for the problem? (Choose two.)

A. The IP address of the remote device is listed in multiple ip host statements in the router configuration.
B. An ACL on the router blocked the ping.
C. The DNS server configuration on the router is missing.
D. The DNS server is unreachable.
E. The **no ip domain-lookup** command is configured on the router.

Correct Answer: CE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 648
Which protocol does a Cisco IP phone use to identify the voice VLAN?

A. CDP
B. LDAP
C. SIP
D. COS

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 649
Which value does an IPv6 host use to create an EUI-64?

A. the MAC address
B. the OSPFv6 router ID

C. the IPv6 address
D. the IPv4 address

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 650
You attempt to ping a remote device by name from a PC, and the ping operation fails and returns the error message “Ping request could not find host.” You verify that the router DHCP pool is configured with a name server. What are two possible reasons for the problem? (Choose two.)

A. The DNS server is not reachable.
B. The PC network interface card device driver is missing.
C. The host that must be resolved does not exist.
D. The subnet mask of the DHCP pool is incorrect.
E. The DHCP server cannot provide an address to the PC.

Correct Answer: AC
Section: (none)
Explanation

Explanation/Reference:

QUESTION 651
Which step is needed to configure SSH on a switch?

A. Configuring an IP domain name.
B. Configuring RSTP.
C. Configuring an SNMP community string.
D. Configuring Telnet on a VTY line.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 652
DRAG DROP

You are updating the IOS on a Cisco router. Drag and drop the tasks from the left into the correct sequence on the right.

Select and Place:

Copy the IOS image to the router.	step 1
Ensure that the router and the FTP server have connectivity to one another.	step 2
Reload the router.	step 3
Save the running configuration of the router.	step 4
Validate that the correct IOS image is stored in NVRAM.	step 5
Verify that the configuration register and boot variable are set correctly on the router.	step 6

Correct Answer:

	Ensure that the router and the FTP server have connectivity to one another.
	Copy the IOS image to the router.
	Validate that the correct IOS image is stored in NVRAM.
	Verify that the configuration register and boot variable are set correctly on the router.
	Save the running configuration of the router.
	Reload the router.

Section: (none)
Explanation

Explanation/Reference:

QUESTION 653
An administrator is in the process of changing the configuration of a router. What command will allow the administrator to check the changes that have been made prior to saving the new configuration?

A. Router# show startup-config
B. Router(config)# show running-config
C. Router# show running-config
D. Router# show running-config changes

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 654
Which VLAN ID is reserved?

A. 1
B. 1002
C. 1006
D. 4094

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 655
Which IPv4 address type is used to communicate with all hosts on a subnet?

A. broadcast
B. link-local
C. anycast
D. multicast

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 656
Which two features are supported with SLAAC? (Choose two.)

A. Duplicate IPv6 addresses are detected.
B. The first 64 bits of a device IPv6 address can be calculated automatically from its MAC address.
C. IPv6 address have an infinite lifetime by default.
D. Router advertisements can track lifetime timers.
E. Globally-routed paths are preferred over equal-cost link-local paths.

Correct Answer: AD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 657
Which option can be used in case a backup route is required in the routing table?

A. floating static route

B. No extra configuration is required.
C. next hop
D. route distribution

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 658
DRAG DROP

Drag and drop the **show cdp** commands from the top onto the output they generate below.

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 659
DRAG DROP

Drag and drop the address blocks from the left onto the correct address types on the right.

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 660
Which statement about device security is true?

A. A router can have a maximum of two passwords configured.
B. The password you configure is encrypted in the running configuration by default.
C. The enable password must be used before the enable secret password.
D. If an encrypted password is lost, the NVRAM configuration must be ignored on boot.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 661
DRAG DROP

You are configuring a default route on a Cisco router. Drag and drop the commands from the left into the correct sequence on the right. Not all commands are used.

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 662
Which command can you enter to forward DHCP requests to a server on behalf of a client on a different network?

A. **service dhcp**
B. **network 192.168.100.0 255.255.255.0**
C. **ip-helper address address**
D. **ip dhcp pool pool_name**

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 663
DRAG DROP

Drag and drop the descriptions of static routing or dynamic routing from the left onto the correct categories on the right.

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 664
Which two DNS record types are currently supported? (Choose two.)

A. NIL
B. A
C. MX
D. B

E. ACK

Correct Answer: BC
Section: (none)
Explanation

Explanation/Reference:

QUESTION 665
DRAG DROP

Drag and drop the DHCP messages from the left into the correct sequence for a DHCP IP address request on the right.

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 666
This task requires the use of various show commands from the CLI of Router1 to answer 4 multiple-choice questions. This does not require any configuration.
Note: The show running-configuration and the show startup-configuration commands have been disabled in this simulation.
To access the multiple-choice questions, click on the numbered boxes on the right of the top panel.
There are 4 multiple-choice questions with this task. Be sure to answer all 4 questions before leaving this item.

Version 1.14
00:00:04
Console
ISP
Router1
S0/0
Switch1

Cisco Terminal

```
Router1 con0 is now available


Press RETURN to get started.
```

What is the subnet broadcast address of the LAN connected to Router1?

A. 192.168.163.15
B. 192.168.163.31
C. 192.168.163.63
D. 192.168.163.127
E. 255.255.255.255

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Explanation:
The IP address assigned to FA0/1 is 192.168.8.9/29, making 192.168.8.15 the broadcast address.

QUESTION 667
Which configuration register value do you enter on a device to bypass the startup configuration?

A. 0x2102
B. 0x2120
C. 0x2124
D. 0x2142

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 668
Which statement about port security is true?

A. It is not supported on private VLANs.
B. It can be configured on SPAN destination ports.
C. The default port security configuration allows for a maximum of 10 MAC addresses.
D. In sticky mode, the port retains dynamically-learned addresses during a link failure.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 669
Which value in a routing table entry represents the subnet mask?

A. prefix length
B. route source code
C. administrative distance
D. next-hop

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 670
Which condition is most important to support the use of syslog messages for troubleshooting?

A. Messages are logged to a UNIX-based server.
B. The router has a large internal buffer space.
C. NTP is in use to ensure accurate timestamps.
D. Messages are logged to a Cisco UCS Server.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 671
DRAG DROP

Drag and drop the Ethernet types from the left onto the correct service descriptions on the right.

Select and Place:

100Base-FX	provides 100 Mbps over copper segments up to 100 100 meters long
100Base-TX	provides 100 Mbps over fiber segments up to 412 meters long
1000Base-LX	provides 10 Gbps over copper segments up to 100 meters long
1000Base-SX	provides 1 Gbps over fiber segments up to 550 meters long
1000Base-T	provides 1 Gbps over fiber segments up to 10 kilometers long
10GBase-T	provides 1 Gbps over copper segments up to 100 meters long

Correct Answer:

100Base-FX	100Base-TX
100Base-TX	100Base-FX
1000Base-LX	10GBase-T
1000Base-SX	1000Base-SX
1000Base-T	1000Base-LX
10GBase-T	1000Base-T

Section: (none)
Explanation

Explanation/Reference:

QUESTION 672
Refer to the exhibit.

If host A is sending packets to host B, where does the Layer 2 frame rewrite occur?

A. on the router before it forwards the packet to host B
B. on host B when it receives the packet from the router
C. on the router when it receives the packet from host A
D. on host A before it sends the packet toward the router

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 673
Which IP address is the broadcast address for subnet 172.16.0.0/19?

A. 172.16.0.255
B. 172.16.31.255
C. 172.16.32.255
D. 172.31.255.255

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 674
Which address scheme is used to route traffic to the public Internet?

A. 2000::/3
B. 172.30.1.0/24
C. FC00::/7
D. 192.168.10.0/24

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 675

Refer to the exhibit. Router R4 is reachable from Router R3. Which two scenarios would prevent the subnet 172.16.2.0/24 from being added to the routing table on router R3? (Choose two.)

A. Router R4 is running RIPv1 instead of RIPv2.
B. Network updates are looping around routers R1, R2, and R3.
C. The subnet uses a loopback interface.
D. Routers R3 and R4 are running different versions of RIP.
E. The subnet uses a classless network.
F. Router R3 has split horizon enabled.

Correct Answer: AD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 676
DRAG DROP

Drag and drop the statements about static routing or dynamic routing from the left into the Static or Dynamic categories on the right.

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 677
DRAG DROP

Drag and drop the TCP/IP protocols from the left onto the OSI model layers on which they operate on the right.

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 678
Refer to the exhibit.

SwitchA# **show mac-address-table**

< non-essential output omitted >

Destination Address	Address Type	VLAN	Destination Port
00b0.d056.fe4d	Dynamic	1	FastEthernet0/3
00b0.d043.ac2e	Dynamic	1	FastEthernet0/4
00b0.d0fe.ac32	Dynamic	1	FastEthernet0/5
00b0.d0da.cb56	Dynamic	1	FastEthernet0/6

Frame received by SwitchA:

Source MAC	Destination MAC	Source IP	Destination IP
00b0.d056.fe4d	00b0.d0da. cb56	192.168.40.5	192.168.40.6

Which option describes how SwitchA will handle the frame just received?

A. It will flood the frame out of all the ports except Fa0/3.
B. It will drop the frame.
C. It will flood the frame out all ports.
D. It will forward the frame out of port Fa0/3 only.
E. D. It will forward the frame out of port Fa0/6 only.

Correct Answer: E
Section: (none)
Explanation

Explanation/Reference:

QUESTION 679
A PC can ping devices on VLAN 5 that are configured with static IP addresses, but it cannot ping other devices on VLAN 5 that receive their IP addresses from a DHCP server. What are two root causes for the issue? (Choose two.)

A. The DHCP server scope is misconfigured
B. The DNS server database is incorrect
C. An ACL on the firewall blocked the ping.
D. An ACL on the router is blocking DHCP messages.
E. The PC failed to receive DHCP information from the DNS server.

Correct Answer: AD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 680
Which two statements about access points in an enterprise network are true? (Choose two.)

A. They can support secure user logins to devices on the network.
B. They can work with SNMP to prevent DDoS attacks.
C. They can be standalone or controller-based.
D. They can serve as a first line of defense in an enterprise network.
E. They can connect wireless devices to a wired network.

Correct Answer: CE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 681
Which step is the first that a host uses to resolve a server hostname to an IP address?

A. It sends a ping to 255.255.255.255 to request the IP address of the server.
B. It sends a request to the DNS server for a table that maps hostnames to DNS client IP addresses.
C. It sends a DNS request to a DHCP server.
D. It sends a DNS request to a DNS server.
E. It sends a DHCP request to a DNS server.

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 682
The output displays the contents of a file system on a device.

```
24348 –rw- 392 May 18 2017 10:17:50 -04:00 csrlx-cfg.log
365041 drwx 4096 Apr 25 2017 12:48:25 -04:00 onep
113569 drwx 8192 May 25 2017 09:33:11 -04:00 syslog
712413184 bytes total (54473329 bytes free)
```

Which command do you enter to delete the syslog directory and all of its contents while leaving the other directories intact?

A. **delete /recursive flash:/syslog**
B. **rmdir flash:/syslog**
C. **delete/force flash:/syslog**
D. **cd flash:/syslog**

Correct Answer: A

Section: (none)
Explanation

Explanation/Reference:

QUESTION 683

192.168.0.0/16
192.168.0.0/18
192.168.192.0/26
192.168.192.0/30

Refer to the exhibit. If these networks are in the routing table of a router, which route does the router use for traffic to 192.168.192.11?

A. 192.168.192.0/26
B. 192.168.0.0/18
C. 192.168.0.0/16
D. 192.168.192.0/30

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 684
Which two cable types can operate in a star topology? (Choose two.)

A. 1000BASE-T
B. FDDI
C. 10BASE-T
D. 10BASE-5
E. 10BASE-2

Correct Answer: AC
Section: (none)
Explanation

Explanation/Reference:

QUESTION 685
Which prefix length is most appropriate for an Ipv6 loopback address?

A. /48
B. /64
C. /127
D. /128

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 686
DRAG DROP

Drag and drop the LLDP commands from the left onto the correct effects on the right.

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 687
Which routing protocol has the lowest administrative distance?

A. IBGP
B. OSPF
C. EIGRP
D. RIP

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 688
Which two IP addresses are valid multicast addresses? (Choose two.)

A. 127.0.0.5
B. 223.0.0.1
C. 224.0.0.1
D. 239.1.1.1
E. 254.5.5.5

Correct Answer: BD
Section: (none)
Explanation

Explanation/Reference:

QUESTION 689
DRAG DROP

Drag and drop the **show** commands from the left onto the primary purposes on the right.

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 690

```
004026 May 23 2017 10:07:10.891 EDT: %SYS-5-CONFIG_I:
Configured from console by cisco on vty0 (10.101.101.99)
```

Refer to the exhibit. Which command is entered to generate this output?

A. **logging history 6**
B. **logging facility sys9**
C. **service sequence-numbers**
D. **logging console 6**

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 691
DRAG DROP

Drag and drop the combinations of device types from the left onto the correct cable types to connect them on the right.

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 692
DRAG DROP

Drag and drop the ping output characters from the left onto the correct meanings on the right.

Select and Place:

Correct Answer:

&	Q
.	U
!	&
Q	!
U	.

Section: (none)
Explanation

Explanation/Reference:

QUESTION 693
DRAG DROP

Drag and drop the router DHCP configuration steps from the left into the Cisco-recommended sequence on the right.

Select and Place:

Configure one or more DNS servers.	step1
Configure the default gateway.	step2
Configure the network ID and subnet mask.	step3
Create one or more IP address pools.	step4
Exclude reserved addresses.	step5
If desired, configure the lease time.	step6

Correct Answer:

Configure one or more DNS servers.	Configure the network ID and subnet mask.
Configure the default gateway.	Create one or more IP address pools.
Configure the network ID and subnet mask.	Exclude reserved addresses.
Create one or more IP address pools.	Configure the default gateway.
Exclude reserved addresses.	Configure one or more DNS servers.
If desired, configure the lease time.	If desired, configure the lease time.

Section: (none)
Explanation

Explanation/Reference:

QUESTION 694
Which banner is the first to be displayed when a user establishes a connection to a router?

A. the MOTD banner
B. the login banner
C. the incoming banner
D. the EXEC banner

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 695
For which reason does a switch flood a frame to all ports?

A. The destination MAC address of the frame is unknown.
B. The source and destination MAC addresses of the frame are the same.
C. The frame has zero destination MAC addresses.
D. The source MAC address of the frame is unknown.

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:

QUESTION 696
Which statement about IPv6 address denotation is true?

A. Any group of four zeroes can be omitted from the notation.
B. Any group of two or more zeroes can be reduced to a single zero.
C. All numbers must be annotated.
D. The use of :: indicates a multicast address.

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 697
Which type of server is the main authoritative server for DNS requests?

A. recursive resolver
B. root server
C. query server
D. stratum server

Correct Answer: B
Section: (none)
Explanation

Explanation/Reference:

QUESTION 698
Which feature is only supported by named access lists?

A. TCP flag filtering
B. destination-address filtering
C. logging
D. contiguous ports

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference:
Reference: https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/sec_data_acl/configuration/xe-3s/sec-data-acl-xe-3s-book/sec-acl-named.html

QUESTION 699
DRAG DROP

Drag and drop the steps in the process of configuring an ACL to allow web access from a server on the left into the correct sequence on the right. Not all steps are used.

Select and Place:

Correct Answer:

Section: (none)

Explanation

Explanation/Reference:

QUESTION 700
DRAG DROP

Drag and drop the logging configuration commands from the left on to the logging locations they configure on the right.

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 701
Which step is first in the DHCP process between a DHCP client and a DHCP server?

A. The client sends a DHCP Request packet to the server.

B. The server sends a DHCP Offer packet to the client.
C. The client sends a DHCP Discover packet to the server.
D. The server sends a DHCP Ack packet to the client.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 702
Which two differences between the OSI and TCP/IP networking models are true? (Choose two.)

A. Only the TCP/IP model has a network interface layer.
B. The OSI model places the TCP protocol in the application layer.
C. Only the OSI model has seven layers.
D. Only the TCP/IP model has a session layer.
E. Only the TCP/IP model has six layers.

Correct Answer: AC
Section: (none)
Explanation

Explanation/Reference:
Reference: https://techdifferences.com/difference-between-tcp-ip-and-osi-model.html

QUESTION 703
Which two IPv6 addresses are valid? (Choose two.)

A. 2020::DBB::1337:0:5709:3670
B. 2000:::1
C. FF01::101
D. FE80:CD00::0:CDE:1227:0:211D:7790
E. 0001::1:1CD0:8665:9801:96C3:C409

Correct Answer: BE
Section: (none)
Explanation

Explanation/Reference:

QUESTION 704
DRAG DROP

Drag and drop the DHCP configuration commands from the left onto the correct effects on the right.

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 705
Which type of IPv6 address does the SLAAC process create?

A. link-local address
B. multicast address
C. anycast address
D. global address

Correct Answer: D
Section: (none)
Explanation

Explanation/Reference:

QUESTION 706
SIMULATION

Instructions

Click the Instructions, Scenario, and Topology Tabs to toggle between the screens.
To minimize the windows, click the [-] button.
To reposition a window, you may drag it by the title bar.

You are required to make appropriate configuration changes to SW1 and SW2.
To configure a switch, click the PC icons.
To access SW1 click PC2's console and to access SW2 click PC4's console.
The console password configured for both switches is **cisco** (all lower case)

Note:
Most commands that use the "Control" or "Escape" key are not supported or necessary, and the **help** command does not display all commands of the help system.

Scenario

You work as a Junior Network Engineer for RADO Network Ltd Company. For testing purposes you are setting up a Layer 2 network in one of your client locations.

Topology Details
The two Switches, SW1 and SW2, are connected using an Ethernet link.
PC1 and PC2 are connected to SW1 and assigned to VLAN 700 and VLAN 800 respectively.
PC3 and PC4 are connected to SW2 and assigned to VLAN 700 and VLAN 800 respectively.

Configuration requirements
Create and name VLANs on both SW1 and SW2
VLAN 700 named as Sales
VLAN 800 named as Marketing
Note: VLAN names are case sensitive.
Configure the switch ports connected to the PCs as access ports.
Assign the switch ports to corresponding VLANs as indicated on the Topology Tab.
Manually configure the ports connected between SW1 and SW2 as trunk ports using IEEE 802.1q standards for trunk encapsulation.

Special Note: To gain the maximum number of points, you must complete the necessary configurations as per requirements.

Correct Answer: See explanations below.
Section: (none)
Explanation

Explanation/Reference:
Explanation:
Switch 1 config:

SW1# conf t
SW1(config)# vlan 700
SW1(config-vlan)#name Sales
SW1(config-vlan)#vlan 800
SW1(config-vlan)#name Marketing
SW1(config-vlan)#exit
SW1(config)#interface fa 0/2
SW1(config-if)#switchport access vlan 700
SW1(config)#interface fa 0/3
SW1(config-if)#switchport access vlan 800
SW1(config-if)#interface fa 0/0
SW1(config-if)#switchport mode trunk
SW1(config-if)#switchport trunk encapsulation dot1q

Switch 2 configuration:

SW2# conf t
SW2(config)# vlan 700
SW2(config-vlan)#name Sales
SW2(config-vlan)#vlan 800
SW2(config-vlan)#name Marketing
SW2(config-vlan)#exit
SW2(config)#interface fa 0/2
SW2(config-if)#switchport access vlan 700
SW2(config)#interface fa 0/3
SW2(config-if)#switchport access vlan 800
SW2(config-if)#interface fa 0/0
SW2(config-if)#switchport mode trunk

SW2(config-if)#switchport trunk encapsulation dot1q

QUESTION 707
DRAG DROP

Drag and drop the steps in the process of reloading a router without loading its running configuration from the correct sequence on the right. Not all steps are used.

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 708
DRAG DROP

Drag and drop the TCP/IP protocols from the left onto the correct transmission protocols on the right.

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 709
Which purpose of a floating static route is true?

A. It disables dynamic routing.
B. It supersedes the route that is installed in the routing table.
C. It improves resiliency when an interface goes down.
D. It is used in the absence of a default route.

Correct Answer: C
Section: (none)
Explanation

Explanation/Reference:

QUESTION 710
DRAG DROP

Drag and drop the wireless access-point components or features from the left onto the correct descriptions on the right.

Select and Place:

Correct Answer:

Section: (none)
Explanation

Explanation/Reference:

QUESTION 711
Which command can you enter to add VLAN 800 to an existing trunk without affecting other VLANs?

A. switchport trunk pruning vlan add 800
B. switchport trunk allowed vlan 800
C. switchport trunk native vlan 800
D. switchport trunk allowed vlan add 800

Correct Answer: A
Section: (none)
Explanation

Explanation/Reference: