Vendor: Cisco

Exam Code: 200-301

Exam Name: CCNA Cisco Certified Network Associate

Version: DEMO

QUESTION 1
Refer to the exhibit. The network engineer is configuring router R2 as a replacement router on the network. After the initial configuration is applied, it is determined that R2 failed to show R1 as a neighbor. Which configuration must be applied to R2 to complete the OSPF configuration and enable it to establish the neighbor relationship with R1?

```
R1#show ip ospf interface g0/0/0
GigabitEthernet0/0/0 is up, line protocol is up
  Internet address is 192.168.1.2/24, Area 0
  Process ID 1, Router ID 192.168.1.1, Network Type POINT-TO-POINT, Cost: 1
  Transmit Delay is 1 sec, State POINT-TO-POINT,
  Timer intervals configured, Hello 15, Dead 40, Wait 40, Retransmit 5
    Hello due in 00:00:08
  Index 1/1, flood queue length 0
  Next 0x0(0)/0x0(0)
  Last flood scan length is 1, maximum is 1
  Last flood scan time is 0 msec, maximum is 0 msec
  Suppress hello for 0 neighbor(s)

R2#show ip ospf interface g0/0/0
GigabitEthernet0/0/0 is up, line protocol is up
  Internet address is 192.168.1.1/24, Area 0
  Process ID 1, Router ID 10.1.1.1, Network Type POINT-TO-POINT, Cost: 1
  Transmit Delay is 1 sec, State POINT-TO-POINT,
  Timer intervals configured, Hello 15, Dead 45, Wait 15, Retransmit 5
    Hello due in 00:00:11
  Index 1/1, flood queue length 0
  Next 0x0(0)/0x0(0)
  Last flood scan length is 1, maximum is 1
  Last flood scan time is 0 msec, maximum is 0 msec
  Suppress hello for 0 neighbor(s)
```

A. R2(config)#router ospf 1
   R2(config-router)#network 192.168.1.0 255.255.255.0 area 2
B. R2(config)#interface g0/0/0
   R2(config-if)#ip ospf hello-interval 10
C. R2(config)#interface g0/0/0
   R2(config-if)#ip ospf dead-interval 40
D. R2(config)#router ospf 1
   R2(config-router)#router-id 192.168.1.2
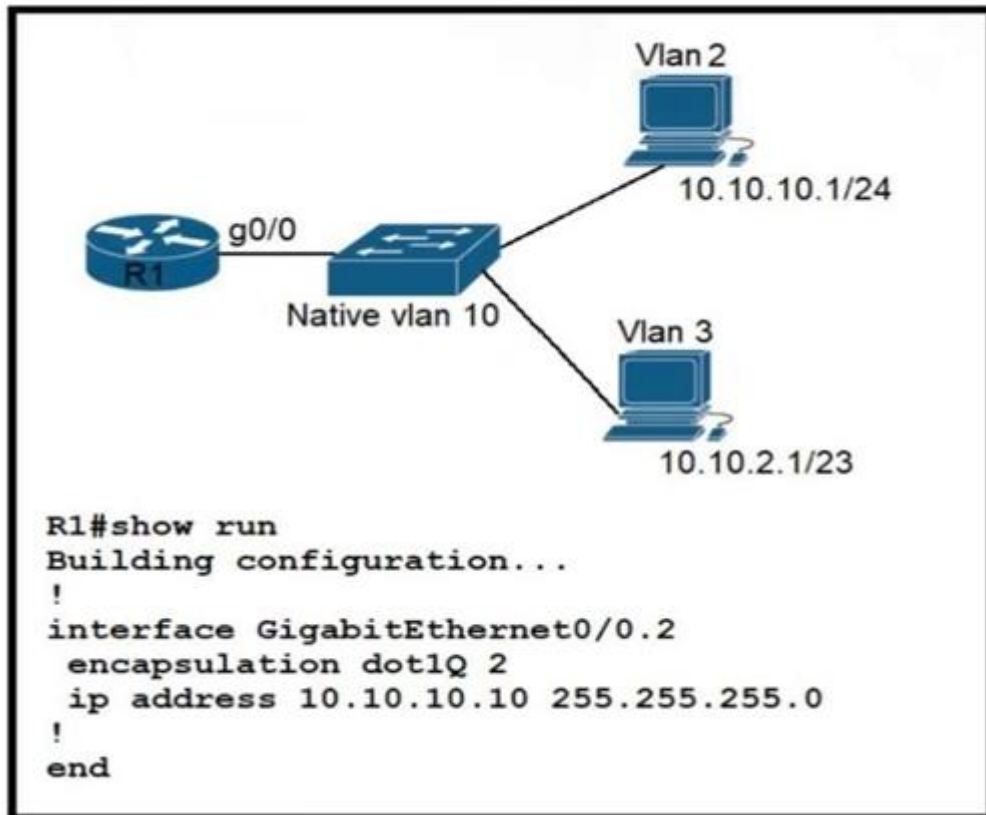
Answer: C
Explanation:
For OSPF the hello and dead timers must match to become neighbors. R1 is configured with a dead time of 40 seconds, while R2 is set to 45 seconds.

QUESTION 2
Refer to the exhibit. Configurations for the switch and PCs are complete. Which configuration must be applied so that VLANs 2 and 3 communicate back and forth?

R1#show run
Building configuration...
!
interface GigabitEthernet0/0.2
 encapsulation dot1Q 2
 ip address 10.10.10.10 255.255.255.0
!
end

A. interface GigabitEthernet0/0 ip address 10.10.2.10 255.255.252.0
B. interface GigabitEthernet0/0.10 encapsulation dot1Q 3 ip address 10.10.2.10 255.255.254.0
C. interface GigabitEthernet0/0.3 encapsulation dot1Q 3 native ip address 10.10.2.10 255.255.252.0
D. interface GigabitEthernet0/0.3 encapsulation dot1Q 10 ip address 10.10.2.10 255.255.255.252
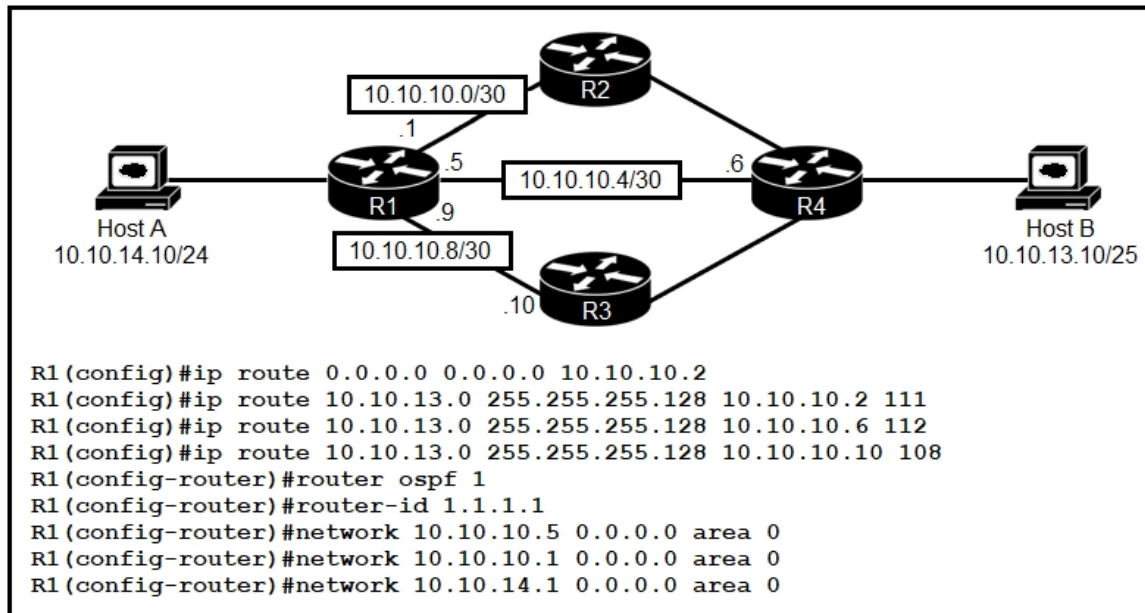
Answer: B
Explanation:
R1 Subinterface Configuration (4.2.4)
The router-on-a-stick method requires you to create a subinterface for each VLAN to be routed.

A subinterface is created using the interface interface_id.subinterface_id global configuration mode command. The subinterface syntax is the physical interface followed by a period and a subinterface number. Although not required, it is customary to match the subinterface number with the VLAN number.

QUESTION 3
Refer to the exhibit. R1 has just received a packet from host A that is destined to host B. Which route in the routing table is used by R1 to reach host B?

```
R1(config)#ip route 0.0.0.0 0.0.0.0 10.10.10.2
R1(config)#ip route 10.10.13.0 255.255.255.128 10.10.10.2 111
R1(config)#ip route 10.10.13.0 255.255.255.128 10.10.10.6 112
R1(config)#ip route 10.10.13.0 255.255.255.128 10.10.10.10 108
R1(config-router)#router ospf 1
R1(config-router)#router-id 1.1.1.1
R1(config-router)#network 10.10.10.5 0.0.0.0 area 0
R1(config-router)#network 10.10.10.1 0.0.0.0 area 0
R1(config-router)#network 10.10.14.1 0.0.0.0 area 0
```

A. 10.10.13.0/25 [1/0] via 10.10.10.2
B. 10.10.13.0/25 [108/0] via 10.10.10.10
C. 10.10.13.0/25 [110/2] via 10.10.10.6
D. 10.10.13.0/25 [110/2] via 10.10.10.2

Answer: B
Explanation:
OSFP routing, indicated by area 0 routing command, has AD of 110. There is a floating static route configured with 108 AD. As the configured static route's AD is lower (108) than the OSPF's default AD (110) it will route the traffic via 10.10.10.10 because it has the lowest AD and thus will be put into the routing table.

QUESTION 4
An organization has decided to start using cloud-provided services.
Which cloud service allows the organization to install its own operating system on a virtual machine?

A. platform-as-a-service
B. software-as-a-service
C. network-as-a-service
D. infrastructure-as-a-service

Answer: D
Explanation:
Below are the 3 cloud supporting services cloud providers provide to customer:

+ SaaS (Software as a Service): SaaS uses the web to deliver applications that are managed by a third-party vendor and whose interface is accessed on the clients' side. Most SaaS applications can be run directly from a web browser without any downloads or installations required, although some require plugins.
+ PaaS (Platform as a Service): are used for applications, and other development, while providing cloud components to software. What developers gain with PaaS is a framework they can build

upon to develop or customize applications. PaaS makes the development, testing, and deployment of applications quick, simple, and cost-effective. With this technology, enterprise operations, or a third-party provider, can manage OSes, virtualization, servers, storage, networking, and the PaaS software itself. Developers, however, manage the applications.
+ IaaS (Infrastructure as a Service): self-service models for accessing, monitoring, and managing remote datacenter infrastructures, such as compute (virtualized or bare metal), storage, networking, and networking services (e.g. firewalls). Instead of having to purchase hardware outright, users can purchase IaaS based on consumption, similar to electricity or other utility billing.

In general, IaaS provides hardware so that an organization can install their own operating system.

QUESTION 5
Drag and Drop Question

Drag and drop the HTTP methods used with REST-Based APIs from the left onto the descriptions on the right.

DELETE		creates a resource and returns its URI in the response header
GET		creates or replaces a previously modified resource using information in the request body
POST		removes a resource
PATCH		retrieves a list of a resource's URIs
PUT		updates a resource using instructions included in the request body

Answer:
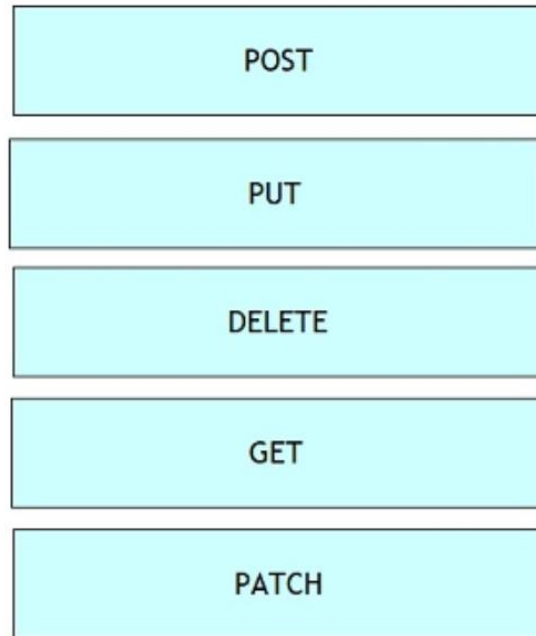
Explanation:
The most commonly used HTTP methods POST, GET, PUT, PATCH, DELETE are similar to CURD (create, update, read, delete) operations in the database. Just try to remember below the key Points:

- Create NEW record =>POST
- read=>GET
- If the record exists then update else create a new record=>PUT
- update/modify=>PATCH
- delete=>DELETE

QUESTION 6
Which network allows devices to communicate without the need to access the Internet?

A. 1729.0.0/16
B. 172.28.0.0/16
C. 192.0.0.0/8
D. 209.165.201.0/24

Answer: B
Explanation:
This question asks about the private ranges of IPv4 addresses. The private ranges of each class of IPv4 are listed below:

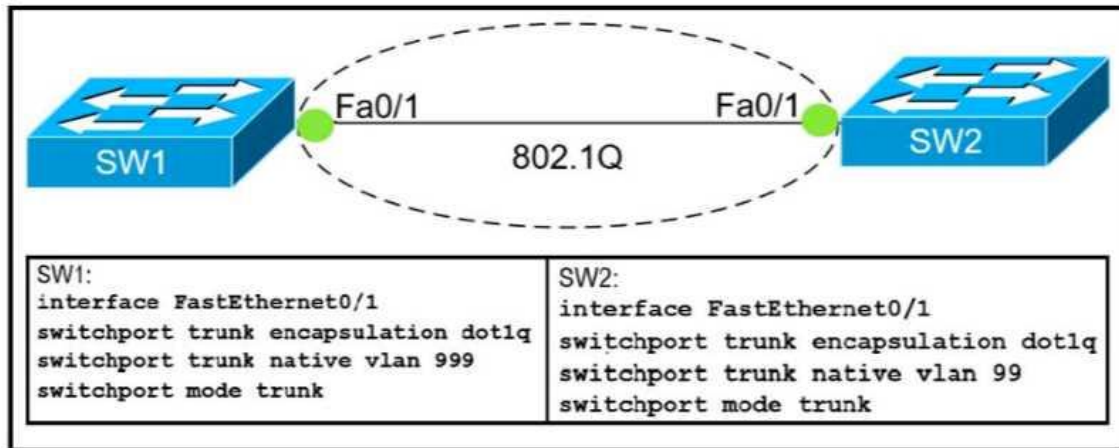Class A private IP address ranges from 10.0.0.0 to 10.255.255.255
Class B private IP address ranges from 172.16.0.0 to 172.31.255.255
Class C private IP address ranges from 192.168.0.0 to 192.168.255.255

Only the network 172.28.0.0/16 belongs to the private IP address (of class B).

QUESTION 7

Refer to Exhibit. Which action do the switches take on the trunk link?


```
SW1:
interface FastEthernet0/1
switchport trunk encapsulation dot1q
switchport trunk native vlan 999
switchport mode trunk
```

```
SW2:
interface FastEthernet0/1
switchport trunk encapsulation dot1q
switchport trunk native vlan 99
switchport mode trunk
```

A. The trunk does not form and the ports go into an err-disabled status.
B. The trunk forms but the mismatched native VLANs are merged into a single broadcast domain.
C. The trunk does not form, but VLAN 99 and VLAN 999 are allowed to traverse the link.
D. The trunk forms but VLAN 99 and VLAN 999 are in a shutdown state.

Answer: B
Explanation:
The trunk still forms with mismatched native VLANs and the traffic can actually flow between mismatched switches. But it is absolutely necessary that the native VLANs on both ends of a trunk link match; otherwise a native VLAN mismatch occurs, causing the two VLANs to effectively merge. For example with the above configuration, SW1 would send untagged frames for VLAN 999. SW2 receives them but would think they are for VLAN 99 so we can say these two VLANs are merged.

QUESTION 8
Which result occurs when PortFast is enabled on an interface that is connected to another switch?

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

Answer: A
Explanation:
Enabling the PortFast feature causes a switch or a trunk port to enter the STP forwarding-state immediately or upon a linkup event, thus bypassing the listening and learning states.

Note: To enable portfast on a trunk port you need the trunk keyword "spanning-tree portfast trunk"

QUESTION 9
Which two events occur automatically when a device Is added to Cisco DNA Center? (Choose two.)

A. The device is assigned to the Global site.
B. The device is placed into the Unmanaged state.
C. The device is placed into the Provisioned state.
D. The device is placed into the Managed state.
E. The device is assigned to the Local site.

Answer: AD
Explanation:
Device in Global Site: When you successfully add, import, or discover a device, Cisco DNA Center places the device in the **Managed** state and assigns it to the Global site by default. Even if you have defined SNMP server, Syslog server, and NetFlow collector settings for the Global site, Cisco DNA Center does not change these settings on the device.
https://www.cisco.com/c/en/us/td/docs/cloud-systems-management/network-automation-and-management/dna-center/2-1-2/admin_guide/b_cisco_dna_center_admin_guide_2_1_2/b_cisco_dna_center_admin_guide_2_1_1_chapter_010.html

QUESTION 10
What are two characteristics of the distribution layer in a three-tier network architecture? (Choose two.)

A. serves as the network aggregation point
B. provides a boundary between Layer 2 and Layer 3 communications
C. designed to meet continuous, redundant uptime requirements
D. is the backbone for the network topology
E. physical connection point for a LAN printer

Answer: AB
Explanation:
The **distribution layer** aggregates the data received from the access layer switches before it is transmitted to the core layer for routing to its final destination. In Figure 1-6, the distribution layer is the boundary between the Layer 2 domains and the Layer 3 routed network.
https://www.ciscopress.com/articles/article.asp?p=2202410&seqNum=4

QUESTION 11
An administrator must secure the WLC from receiving spoofed association requests.
Which steps must be taken to configure the WLC to restrict the requests and force the user to wait 10 ms to retry an association request?

A. Enable Security Association Teardown Protection a d set the SA Query timeout to 10
B. Enable MAC filtering and set the SA Query timeout to 10
C. Enable 802.1x Layer 2 security and set me Comeback timer to 10
D. Enable the Protected Management Frame service and set the Comeback timer to 10

Answer: C
Explanation:
Step 1. You need to enable protected management frame under the SSID configured with 802.1x/PSK. You have three options as shown in the image.
Step 2. You then need to specify the Comeback timer and SA query timeout. Comeback timer specifies the time which an associated client must wait before the association can be tried again when first denied with a status code 30. SA query timeout specifies the amount of time the WLC

waits for a response from the client for the query process. If there is no response from the client, its association is deleted from the controller. This is done as shown in the image.
https://www.cisco.com/c/en/us/support/docs/wireless-mobility/wireless-lan-wlan/212576-configure-802-11w-management-frame-prote.html#anc8

QUESTION 12
Refer to the exhibit. The network administrator must prevent the switch Cat9K-2 IP address from being visible in LLDP without disabling the protocol.
Which action must be taken must be taken to complete the task?

```
Cat9K-1# show lldp entry Cat9K-2

Local Intf: Gi1/0/21
Chassis id: 308b.b2b3.2880
Port id: Gil/0/21
Port Description: GigabitEthernet1/0/21
System Name: Cat9K-2

Management Addresses:
    IP: 10.5.110.2
```

A. Configure the no lldp tlv-select-management-address command globally on Cat9K-2
B. Configure the no lldp transmit command on interface G1/0/21 in Cat9K-1
C. Configure the no lldp receive command on interface G1/0/21 on Cat9K-1
D. Configure the no lldp mac-phy-cfg command globally on Cat9K-2

Answer: A
Explanation:
This example shows how to enable LLDP to send or receive IPv4 management address TLVs:
switch# configure terminal
switch(config)# lldp tlv-select management-address v4

Source:
https://www.cisco.com/c/en/us/td/docs/switches/datacenter/nexus3000/sw/layer2/602_U1_1/b_Cisco_n3k_Layer_2_Switching_Config_602_u1_1/b_Cisco_n3k_Layer_2_Switching_Config_602_u1_1_chapter_01001.pdf

QUESTION 13
Drag and Drop Question

Drag and drop the descriptions of file-transfer protocols from the left onto the correct protocols on the right.

does not require user authentication	FTP
uses UDP	
uses TCP	
uses ports 20 and 21	TFTP
provides reliability when loading an IOS image upon boot up	
uses port 69	

Answer:

FTP
uses TCP
uses ports 20 and 21
provides reliability when loading an IOS image upon boot up

TFTP
does not require user authentication
uses UDP
uses port 69

QUESTION 14
Which two QoS tools provides congestion management? (Choose two)

A. CAR
B. CBWFQ
C. PQ
D. PBR
E. FRTS

Answer: BC
Explanation:
Type of queuing methods are available:
- First-In-First-Out (FIFO)
- Priority Queuing (PQ)
- Custom Queuing (CQ)
- Weighted Fair Queuing (WFQ)
- Class-Based Weighted Fair Queuing (CBWFQ)

- Low-Latency Queuing (LLQ)
https://www.orbit-computer-solutions.com/qos-congestion-management-tools/

QUESTION 15
Which switch technology establishes a network connection immediately when it is plugged in?

A. PortFast
B. BPDU guard
C. UplinkFast
D. BackboneFast

Answer: A
Explanation:
PortFast causes a switch or trunk port to enter the spanning tree forwarding state immediately, bypassing the listening and learning states.
You can use PortFast on switch or trunk ports that are connected to a single workstation, switch, or server to allow those devices to connect to the network immediately, instead of waiting for the port to transition from the listening and learning states to the forwarding state.
https://www.ccexpert.us/routing-switching/portfast-uplinkfast-and-backbonefast.html

QUESTION 16
With REST API, which standard HTTP header tells a server which media type is expected by the client?

A. Accept-Encoding: gzip. deflate
B. Accept-Patch: text/example; charset=utf-8
C. Content-Type: application/json; charset=utf-8
D. Accept: application/json

Answer: D
Explanation:
Accept header is a way for a client to specify the media type of the response content it is expecting and Content-type is a way to specify the media type of request being sent from the client to the server.

QUESTION 17
Which CRUD operation corresponds to the HTTP GET method?

A. read
B. update
C. create
D. delete

Answer: A
Explanation:
GET: This method retrieves the information identified by the request URI. In the context of the RESTful web services, this method is used to retrieve resources. This is the method used for read operations (the R in CRUD).
https://hub.packtpub.com/crud-operations-rest/

QUESTION 18
Where does the configuration reside when a helper address Is configured lo support DHCP?

A. on the router closest to the server
B. on the router closest to the client
C. on every router along the path
D. on the switch trunk interface

Answer: B
Explanation:
https://techhub.hpe.com/eginfolib/networking/docs/switches/K-KA-KB/15-18/5998-
8164_mrg/content/ch12s04.html
https://community.cisco.com/t5/routing/configure-dhcp-relay-ip-helper-address-need-help/td-
p/4127915
the IP helper goes on the first layer 3 device in the path towards the DHCP server. In your case,
that appears to be the 3850. Put the helper address on the Vlan interfaces, e.g.:
 interface Vlan60
ip address 10.233.190.254 255.255.255.0
--> ip helper-address x.x.x.x
no ip redirects
no ip unreachables

QUESTION 19
Refer to the exhibit. A network administrator must permit SSH access to remotely manage routers
in a network. The operations team resides on the 10.20.1.0/25 network. Which command will
accomplish this task?

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

A. access-list 2699 permit udp 10.20.1.0 0.0.0.255
B. no access-list 2699 deny tcp any 10.20.1.0 0.0.0.127 eq 22
C. access-list 2699 permit tcp any 10.20.1.0 0.0.0.255 eq 22
D. no access-list 2699 deny ip any 10.20.1.0 0.0.0.255

Answer: D
Explanation:
Already a statement is there in last to allow SSH Traffic for network 10.20.1.0 0.0.0.127, but
Second statement says deny ip any 10.20.1.0 0.0.0.255, so how it will work once it is denied. So
the right answer is remove the --- no access-list 2699 deny ip any 10.20.1.0 0.0.0.255.

QUESTION 20
Refer to the exhibit. What is represented beginning with line 1 and ending with line 5?

```
1 [
2    { "switch": "3750", "port": e2 },
3    { "router": "2951", "port": e20 }.
4    { "switch": "3750", "port": e23 },
5 ]
```

A. object
B. value
C. key
D. array

Answer: D
Explanation:
These are some of the characteristics of JSON:
It uses a hierarchical structure and contains nested values.
It uses braces { } to hold objects and square brackets [ ] hold arrays.
Its data is written as key/value pairs.

QUESTION 21
Refer to the exhibit. An engineer has started to configure replacement switch SW1.
To verify part of the configuration, the engineer issued the commands as shown and noticed that
the entry for PC2 is missing.
Which change must be applied to SW1 so that PC1 and PC2 communicate normally?

```
        Vlan2                         Vlan2
            Fa 0/1         Fa 0/2
   [PC1]                           [PC2]
        0007.ec53.4289         0007.ec89.7513

SW1#show run                    SW1#show mac-address-table
Building configuration...                Mac Address Table
!                               ----------------------------------------
interface FastEthernet0/1       Vlan    Mac Address      Type      Ports
   switchport access vlan 2     ----    ----------------  --------  ------
   switchport mode access        2    0007.ec53.4289  DYNAMIC   Fa0/1
!
interface FastEthernet0/2
   switchport access vlan 2
   switchport trunk allowed vlan 3
   switchport mode trunk
```

A. SW1(config)#interface fa0/2
   SW1(config-if)#no switchport mode trunk
   SW1(config-if)#no switchport trunk allowed vlan 3
   SW1(config-if)#switchport mode access
B. SW1(config)#interface fa0/2
   SW1(config-if)#no switchport access vlan 2
   SW1(config-if)#no switchport trunk allowed vlan 3
   SW1(config-if)#switchport trunk allowed vlan 2
C. SW1(config)#interface fa0/2

SW1(config-if)#no switchport access vlan 2
SW1(config-if)#switchport trunk native vlan 2
SW1(config-if)#switchport trunk allowed vlan 3

D. SW1(config)#interface fa0/1
SW1(config-if)#no switchport access vlan 2
SW1(config-if)#switchport access vlan 3
SW1(config-if)#switchport trunk allowed vlan 2

Answer: A
Explanation:
access port - a port that can be assigned to a single VLAN. This type of interface is configured on switch ports that are connected to end devices such as workstations, printers, or access points. trunk port - a port that is connected to another switch. This type of interface can carry traffic of multiple VLANs, thus enabling you to extend VLANs across your entire network. Frames are tagged by assigning a VLAN ID to each frame as they traverse between switches.

QUESTION 22
Refer to the exhibit. Which configuration enables DHCP addressing for hosts connected to interface FastEthernet0/1 on router R4?

```
service timestamps debug datetime msec
service timestamps log datetime msec
service password-encryption
!
hostname R4
!
boot-start-marker
boot-end-marker
!
ip cef
!
interface FastEthernet0/0
description WAN_INTERFACE
ip address 10.0.1.2 255.255.255.252
ip access-group 100 in
!
interface FastEthernet0/1
description LAN_INTERFACE
ip address 10.148.2.1 255.255.255.0
duplex auto
speed auto
!
ip forward-protocol nd
!
access-list 100 permit eigrp any any
access-list 100 permit icmp any any
access-list 100 permit tcp 10.149.3.0 0.0.0.255 host 10.0.1.2 eq 22
access-list 100 permit tcp any any eq 80
access-list 100 permit tcp any any eq 443
access-list 100 deny ip any any log
```

A. interface FastEthernet0/0

ip helper-address 10.0.1.1
i
access-list 100 permit udp host 10.0.1.1 eq bootps host 10.148.2.1
B. interface FastEthernot0/1
ip helper-address 10.0.1.1
!
access-list 100 permit tcp host 10.0.1.1 eq 67 host 10.148.2.1
C. interface FastEthernetO/0
ip helper-address 10.0.1.1
I
access-list 100 permit host 10.0.1.1 host 10.148.2.1 eq bootps
D. interface FastEthernet0/1
ip helper-address 10.0.1.1
!
access-list 100 permit udp host 10.0.1.1 eq bootps host 10.148.2.1
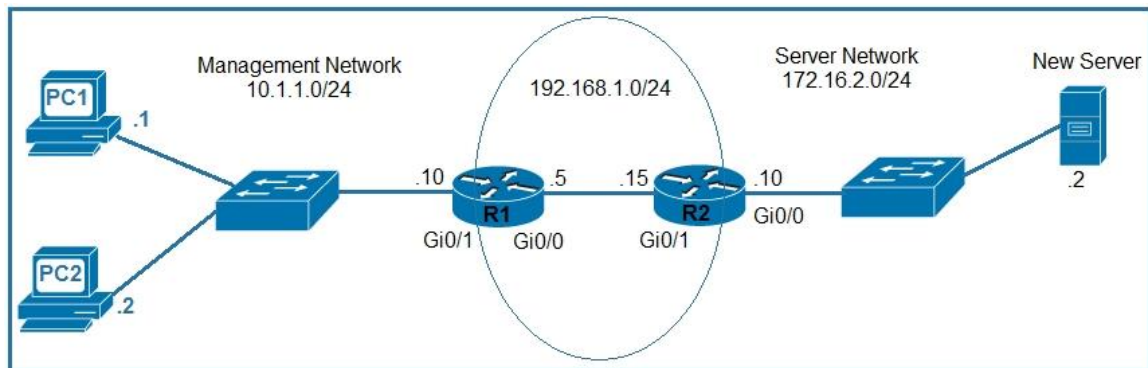
Answer: D
Explanation:
BOOTP is implemented using the User Datagram Protocol (UDP) for transport protocol, port number 67 is used by the (DHCP) server for receiving client-requests and port number 68 is used by the client for receiving (DHCP) server responses. BOOTP operates only on IPv4 networks.

QUESTION 23
Refer to the exhibit. An engineer is updating the R1 configuration to connect a new server to the management network. The PCs on the management network must be blocked from pinging the default gateway of the new server.
Which command must be configured on R1 to complete the task?

A. R1(config)#ip route 172.16.2.2 255.255.255.248 gi0/1
B. R1(config)#ip route 172.16.2.2 255.255.255.255 gi0/0
C. R1(config)#ip route 172.16.2.0 255.255.255.0 192.168.1.15
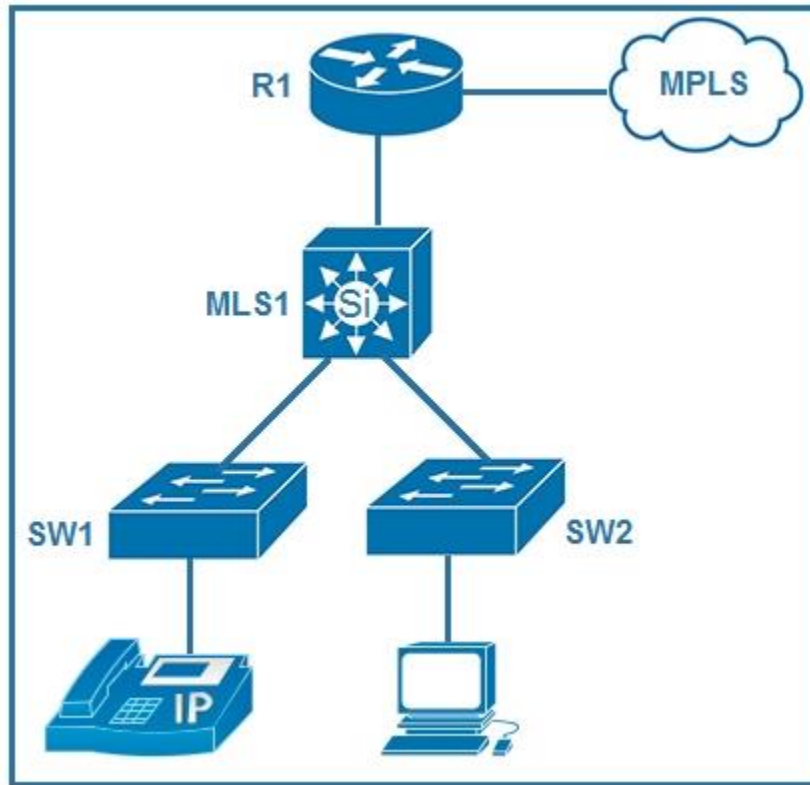D. R1(conflg)#ip route 172.16.2.0 255.255.255.0 192.168.1.5

Answer: B
Explanation:
By specifying the outgoing interface and not the next hop IP address, the Management devices will be able to ping the new server, but not the default gateway of the server.

QUESTION 24

Refer to the exhibit. Which plan must be Implemented to ensure optimal QoS marking practices on this network?

A. As traffic traverses MLS1 remark the traffic, but trust all markings at the access layer.
B. Trust the IP phone markings on SW1 and mark traffic entering SW2 at SW2.
C. Remark traffic as it traverses R1 and trust all markings at the access layer.
D. As traffic enters from the access layer on SW1 and SW2 trust all traffic markings.

Answer: B
Explanation:
Tell the switch to trust CoS markings from a Cisco IP phone on the access port. Cisco IP phones use 802.1q tags, these .1q tags contain the CoS value, to mark voice traffic at layer 2. When it's forwarded upstream, the DSCP value is trusted (on the uplink port) and unchanged, but the .1q tag (and with it the CoS value) is stripped off by the upstream switch when received over the trunk.

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