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300-410

Implementing Cisco Enterprise Advanced Routing and Services

Version 2.0

Sections

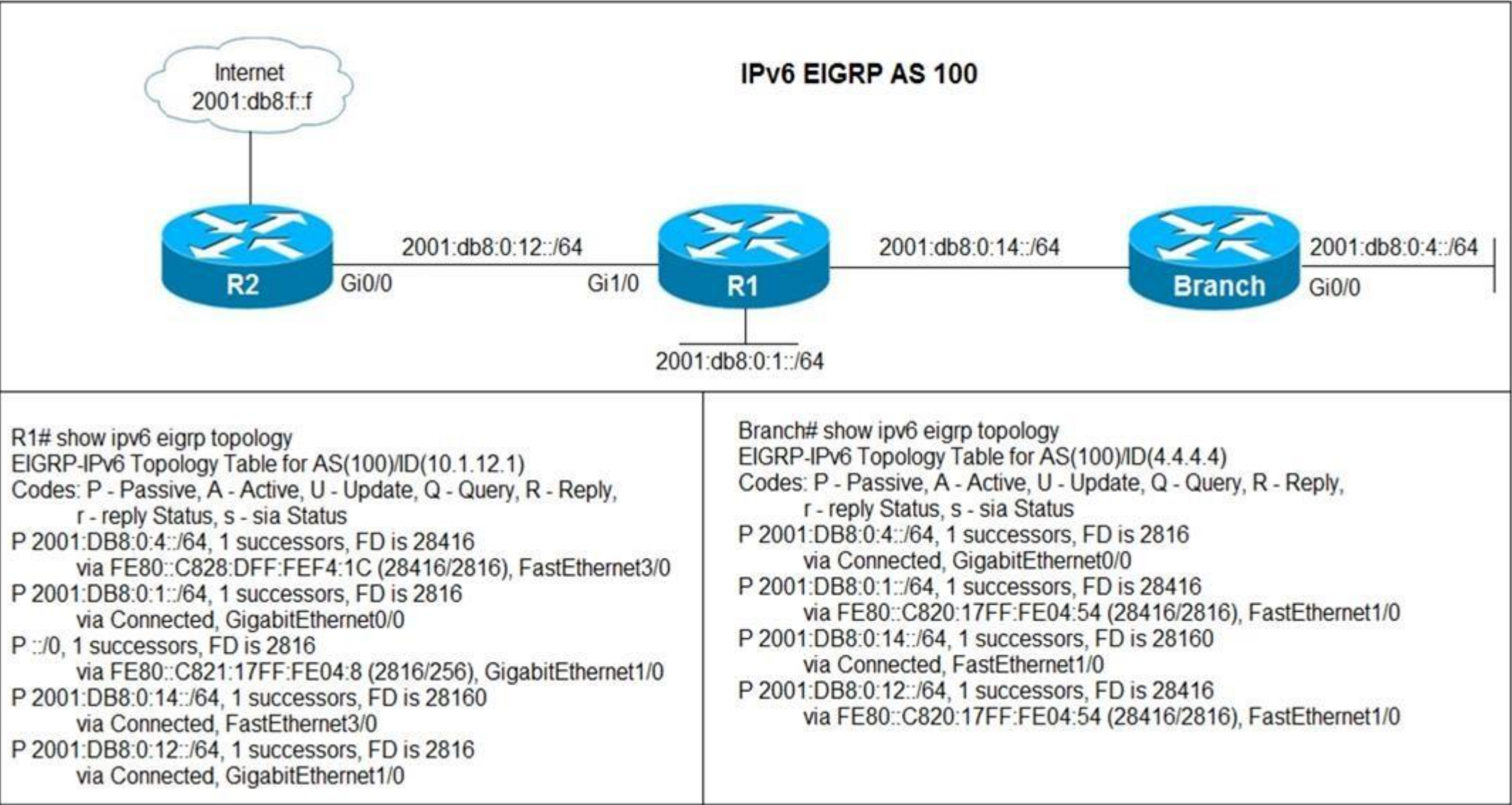
1. Layer 3 Technologies
2. VPN Technologies
3. Infrastructure Security
4. Infrastructure Services

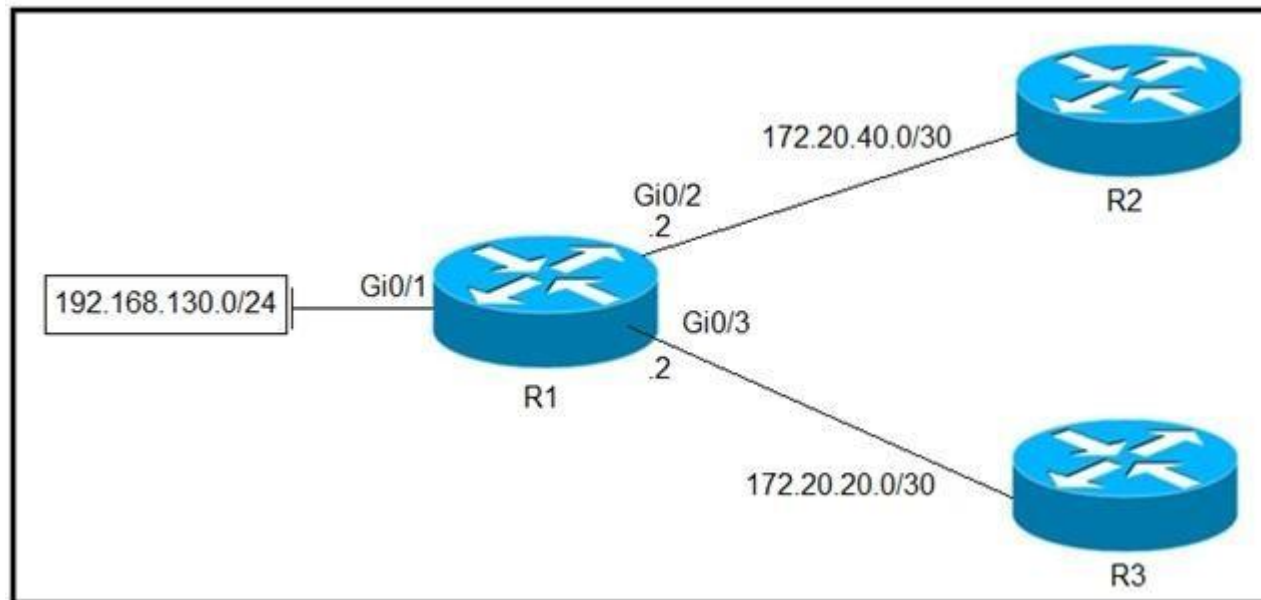
Exam A

QUESTION 1

Refer to the exhibit. Users in the branch network of 2001:db8:0:4::/64 report that they cannot access the Internet.

Which command is issued in **IPv6 router EIGRP 100** configuration mode to solve this issue?





```

access-list 1 permit 192.168.130.0 0.0.0.255
!
interface Gi0/2
ip policy route-map test
!
route-map test permit 10
match ip address 1
set ip next-hop 172.20.20.2
access-list 1 permit 192.168.130.0 0.0.0.255
!
interface Gi0/1
ip policy route-map test
!
route-map test permit 10
match ip address 1
set ip next-hop 172.20.40.2
access-list 1 permit 192.168.130.0 0.0.0.255
!
interface Gi0/2
ip policy route-map test
!
route-map test permit 10
match ip address 1
set ip next-hop 172.20.20.1

```

A.

B. C.

```
access-list 1 permit 192.168.130.0 0.0.0.255
!
interface Gi0/1
ip policy route-map test
!
route-map test permit 10
match ip address 1
set ip next-hop 172.20.40.1
```

D.

Correct Answer: D

Section: Layer 3 Technologies Explanation

Explanation/Reference:

QUESTION 3

R2 has a locally originated prefix 192.168.130.0/24 and has these configurations:

```
ip prefix-list test seq 5 permit 192.168.130.0/24
!
route-map OUT permit10
match ip address prefix-list test
set as-path prepend 65000
```

What is the result when the **route-map OUT** command is applied toward an eBGP neighbor R1 (1.1.1.1) by using the **neighbor 1.1.1.1 route-map OUT out** command?

- A. R1 sees 192.168.130.0/24 as two AS hops away instead of one AS hop away.
- B. R1 does not accept any routes other than 192.168.130.0/24
- C. R1 does not forward traffic that is destined for 192.168.30.0/24
- D. Network 192.168.130.0/24 is not allowed in the R1 table

Correct Answer: A

Section: Layer 3 Technologies Explanation

Explanation/Reference:

QUESTION 4

Which method changes the forwarding decision that a router makes without first changing the routing table or influencing the IP data plane?

- A. nonbroadcast multiaccess
- B. packet switching
- C. policy-based routing

D. forwarding information base

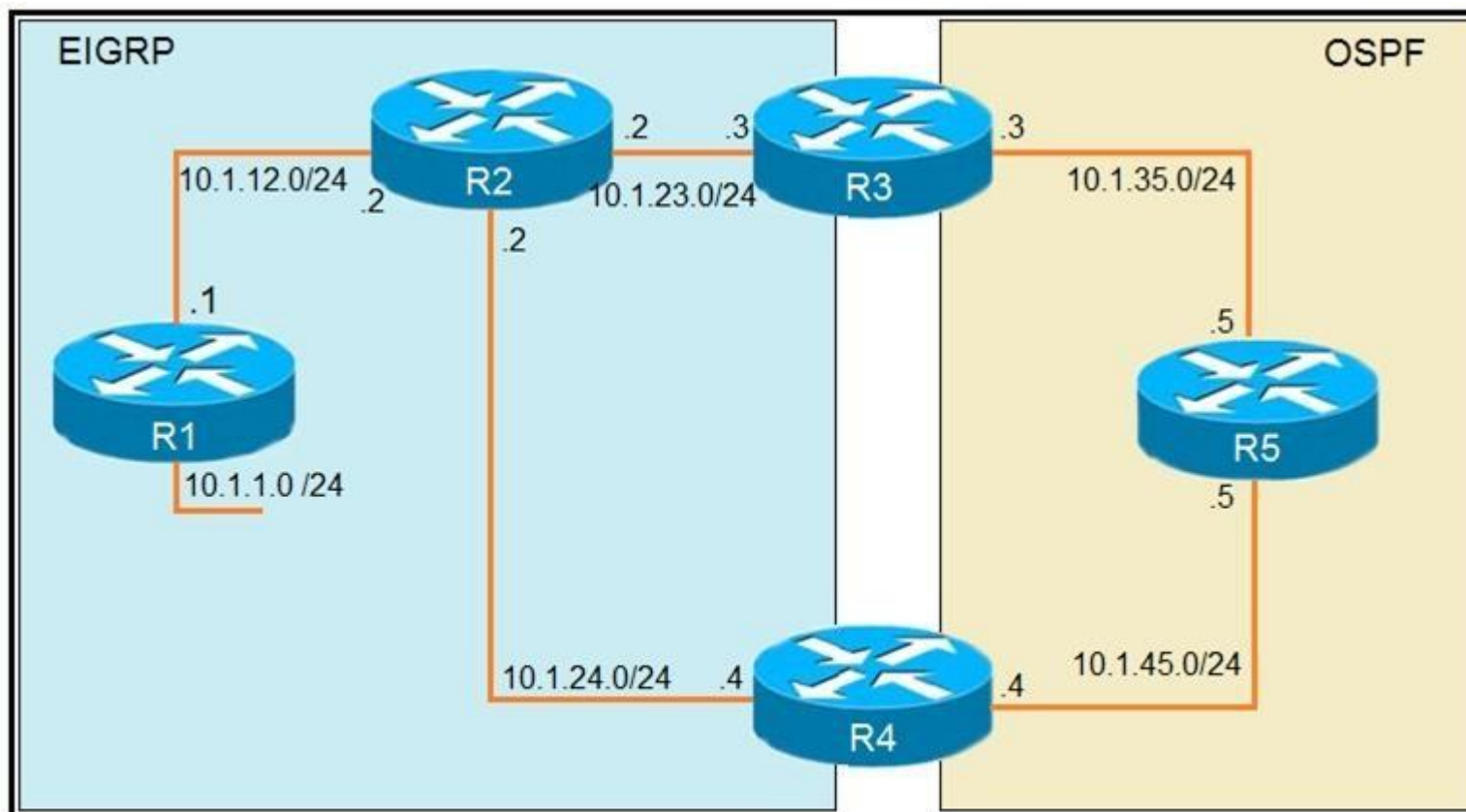
Correct Answer: C

Section: Layer 3 Technologies Explanation

Explanation/Reference:

QUESTION 5 Refer to the exhibit. The output of the trace route from R5 shows a loop in the network.

Which configuration prevents this loop?



```

R1
router eigrp 1
 redistribute connected
 network 10.1.12.1 0.0.0.0

R3
router ospf 1
 redistribute eigrp 1 subnets
 network 10.1.35.3 0.0.0.0 area 0

R4
router eigrp 1
 redistribute ospf 1 metric 2000000 1 255 1 1500
!
router ospf 1
 network 10.1.45.4 0.0.0.0 area 0

R5#traceroute 10.1.1.1

Type escape sequence to abort.
Tracing the route to 10.1.1.1

 1 10.1.35.3 80 msec 44 msec 20 msec
 2 10.1.23.2 44 msec 104 msec 64 msec
 3 10.1.24.4 44 msec 64 msec 40 msec
 4 10.1.45.5 24 msec 40 msec 20 msec
 5 10.1.35.3 92 msec 144 msec 148 msec
 6 10.1.23.2 108 msec 76 msec 80 msec
    <output truncated>

```

```
R3
router ospf 1
 redistribute eigrp 1 subnets route-map SET-TAG
!
route-map SET-TAG permit 10
 set tag 1
```

```
R4
router eigrp 1
 redistribute ospf 1 metric 2000000 1 255 1 1500 route-map FILTER-TAG
!
route-map FILTER-TAG deny 10
 match tag 1
!
route-map FILTER-TAG permit 20
```

```
R3
router eigrp 1
 redistribute OSPF 1 route-map SET-TAG
!
route-map SET-TAG permit 10
 set tag 1
```

```
R4
router eigrp 1
 redistribute ospf 1 metric 2000000 1 255 1 1500 route-map FILTER-TAG
 network 10.1.24.4 0.0.0.0
!
route-map FILTER-TAG deny 10
 match tag 1
!
route-map FILTER-TAG permit 20
```

A.


```
R3
router ospf 1
 redistribute eigrp 1 subnets route-map SET-TAG
!
route-map SET-TAG permit 10
 set tag 1
```

```
R4
router eigrp 1
 redistribute ospf 1 metric 2000000 1 255 1 1500 route-map FILTER-TAG
!
route-map FILTER-TAG permit 10
 match tag 1
```

```
R3
router ospf 1
 redistribute eigrp 1 subnets route-map SET-TAG
!
route-map SET-TAG deny 10
 set tag 1
```

```
R4
router eigrp 1
 redistribute ospf 1 metric 2000000 1 255 1 1500 route-map FILTER-TAG
!
route-map FILTER-TAG deny 10
 match tag 1
```

c.

D.

Correct Answer: B

Section: Layer 3 Technologies Explanation

Explanation/Reference:

QUESTION 6

Refer to the exhibit. An engineer configures a static route on a router, but when the engineer checks the route to the destination, a different next hop is chosen.

What is the reason for this?

```
Router#show running-config | include ip route
ip route 192.168.2.2 255.255.255.255 209.165.200.225 130
Router#show ip route

<output omitted>

Gateway of last resort is not set

    192.168.1.0/32 is subnetted, 1 subnets
C       192.168.1.1 is directly connected, Loopback0
    192.168.2.0/32 is subnetted, 1 subnets
O       192.168.2.2[110/11] via 192.168.12.2, 00:52:09, Ethernet0/0
    192.168.12.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.12.0/24 is directly connected, Ethernet0/0
L       192.168.12.1/32 is directly connected, Ethernet0/0
    209.165.200.0/24 is variably subnetted, 2 subnets, 2 masks
C       209.165.200.0/24 is directly connected, Ethernet0/1
        209.165.200.226/32 is directly connected, Ethernet0/1
```

A. Dynamic routing protocols always have priority over static routes.

- B. The metric of the OSPF route is lower than the metric of the static route.
- C. The configured AD for the static route is higher than the AD of OSPF.
- D. The syntax of the static route is not valid, so the route is not considered.

Correct Answer: C

Section: Layer 3 Technologies Explanation

Explanation/Reference:

QUESTION 7

Refer to the exhibit. An engineer is trying to generate a summary route in OSPF for network 10.0.0.0/8, but the summary route does not show up in the routing table.

Why is the summary route missing?

```
Router#show ip route
<output omitted>
Gateway of last resort is not set

    192.168.1.0/32 is subnetted, 1 subnets
O       192.168.1.1 [110/11] via 192.168.12.1, 16:56:40, Ethernet0/0
    192.168.2.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.2.0/24 is directly connected, Loopback0
L       192.168.2.2/32 is directly connected, Loopback0
    192.168.3.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.3.0/24 is directly connected, Ethernet0/1
L       192.168.3.1/32 is directly connected, Ethernet0/1
    192.168.12.0/24 is variably subnetted, 2 subnets, 2 masks
C       192.168.12.0/24 is directly connected, Ethernet0/0
L       192.168.12.2/32 is directly connected, Ethernet0/0
Router#show running-config | section ospf
router ospf 1
  summary-address 10.0.0.0 255.0.0.0
  redistribute static subnets
  network 192.168.3.0 0.0.0.255 area 0
  network 192.168.12.0 0.0.0.255 area 0
Router#
```

- A. The **summary-address** command is used only for summarizing prefixes between areas.
- B. The summary route is visible only in the OSPF database, not in the routing table.
- C. There is no route for a subnet inside 10.0.0.0/8, so the summary route is not generated.
- D. The summary route is not visible on this router, but it is visible on other OSPF routers in the same area.

Correct Answer: C

Section: Layer 3 Technologies Explanation

Explanation/Reference:

QUESTION 8 Refer to the exhibit. An engineer is trying to block the route to 192.168.2.2 from the routing table by using the configuration that is shown. The route is still present in the routing table as an OSPF route.

Which action blocks the route?

```
Router#show access-lists
Standard IP access list 1
  10 permit 192.168.2.2 (1 match)
Router#
Router#show route-map
route-map RM-OSPF-DL, permit, sequence 10
  Match clauses:
    ip address (access-lists): 1
  Set clauses:
    Policy routing matches: 0 packets, 0 bytes
Router#
Router#show running-config | section ospf
router ospf 1
  network 192.168.1.1 0.0.0.0 area 0
  network 192.168.12.0 0.0.0.255 area 0
  distribute-list route-map RM-OSPF-DL in
Router#|
```

- A. Use an extended access list instead of a standard access list.
- B. Change **sequence 10** in the **route-map** command from **permit** to **deny**.
- C. Use a prefix list instead of an access list in the route map.
- D. Add this statement to the route map: route-map **RM-OSPF-DL deny 20**.

Correct Answer: C

Section: Layer 3 Technologies Explanation

Explanation/Reference:

QUESTION 9 What is a prerequisite for configuring BFD?

- A. Jumbo frame support must be configured on the router that is using BFD.
- B. All routers in the path between two BFD endpoints must have BFD enabled.
- C. Cisco Express Forwarding must be enabled on all participating BFD endpoints.
- D. To use BFD with BGP, the **timers 3 9** command must first be configured in the BGP routing process.

Correct Answer: C

Section: Layer 3 Technologies Explanation

Explanation/Reference:

Reference: https://www.cisco.com/c/en/us/td/docs/ios/12_0s/feature/guide/fs_bfd.html#wp1043332

QUESTION 10

DRAG DROP

Drag and drop the OSPF adjacency states from the left onto the correct descriptions on the right.

Select and Place:**Correct Answer:****Section: Layer 3 Technologies Explanation****Explanation/Reference:**Reference: <https://www.cisco.com/c/en/us/support/docs/ip/open-shortest-path-first-ospf/13685-13.html>**QUESTION 11**

Refer to the exhibit. R2 is a route reflector, and R1 and R3 are route reflector clients. The route reflector learns the route to 172.16.25.0/24 from R1, but it does not advertise to R3.

What is the reason the route is not advertised?

R1 #show ip bgp summary

BGP router identifier 192.168.1.1, local AS number 65000

<output omitted>

Neighbor	V	AS	MsgRcvd	MsgSent	Tblver	InQ	OutQ	Up/Down	State/PfxRcd
192.168.2.2	4	65000	28	28	22	0	0	00:21:31	0

R1#show ip bgp

BGP table version is 22, local router ID is 192.168.1.1

Status codes: s suppressed, d damped, h history, * valid, > best, i – internal,
r RIB-failure, s stale, m multipath, b backup-path, f RT-Filter,
x best-external, a additional-path, C RIB-compressed,

Origin codes: i – IGP, e – EGP, ? – incomplete

RPKI validation codes: V valid, I invalid, N Not found

	Network	Next Hop	Metric	LocPrf	Weight	Path
*>	172.16.25.0/24	209.165.200.225	0		32768	?

R1#

R2 #show ip bgp summary

BGP router identifier 192.168.2.2, local AS number 65000

<output omitted>

Neighbor	V	AS	MsgRcvd	MsgSent	Tblver	InQ	OutQ	Up/Down	State/PfxRcd
192.168.1.1	4	65000	29	28	3	0	0	00:22:07	1
192.168.3.3	4	65000	7	8	3	0	0	00:02:55	0

R2#show ip bgp

BGP table version is 3, local router ID is 192.168.2.2

Status codes: s suppressed, d damped, h history, * valid, > best, i – internal,
r RIB-failure, s stale, m multipath, b backup-path, f RT-Filter,
x best-external, a additional-path, C RIB-compressed,

Origin codes: i – IGP, e – EGP, ? – incomplete

RPKI validation codes: V valid, I invalid, N Not found

	Network	Next Hop	Metric	LocPrf	Weight	Path
* i	172.16.25.0/24	209.165.200.225	0	100	0	?

R2#

R3 #show ip bgp summary

BGP router identifier 192.168.3.3, local AS number 65000

BGP table version is 4, main routing table version 4

Neighbor	V	AS	MsgRcvd	MsgSent	Tblver	InQ	OutQ	Up/Down	State/PfxRcd
192.168.2.2	4	65000	8	7	4	0	0	00:03:08	0

R3#

- A. R2 does not have a route to the next hop, so R2 does not advertise the prefix to other clients.
- B. Route reflector setup requires full IBGP mesh between the routers.
- C. In route reflector setup, only classful prefixes are advertised to other clients.
- D. In route reflector setups, prefixes are not advertised from one client to another.

Correct Answer: A

Section: Layer 3 Technologies Explanation

Explanation/Reference:

QUESTION 12

```
Router#sh ip route ospf
<output omitted>
Gateway is last resort is not set

    10.0.0.0/24 is subnetted, 1 subnets
o   E2   10.0.0.0 [110/20] via 192.168.12.2, 00:00:10, Ethernet0/0
o       192.168.3.0/24 [110/20] via 192.168.12.2, 00:00:50, Ethernet0/0
Router#

Router#show ip bgp
<output omitted>
      Network        Next Hop      Metric      LocPrf      Weight      Path
>*   192.168.1.1/32    0.0.0.0         0             32768        ?
>*   192.168.3.0       192.168.12.2    20            32768        ?
>*   192.168.12.0      0.0.0.0         0             32768        ?
Router#show running-config | section router bgp
router bgp 65000
 bgp log-neighbor-changes
 redistribute ospf 1
Router#
```

Refer to the exhibit. An engineer is trying to redistribute OSPF to BGP, but not all of the routes are redistributed.

What is the reason for this issue?

- A. By default, only internal routes and external type 1 routes are redistributed into BGP
- B. Only classful networks are redistributed from OSPF to BGP
- C. BGP convergence is slow, so the route will eventually be present in the BGP table
- D. By default, only internal OSPF routes are redistributed into BGP

Correct Answer: D

Section: Layer 3 Technologies

Explanation

Explanation/Reference:

QUESTION 13

```
R200#show ip bgp summary
BGP router identifier 10.1.1.1, local AS number 65000
BGP table version is 26, main routing table version 26
1 network entries using 132 bytes of memory
1 path entries using 52 bytes of memory
2/1 BGP path/bestpath attribute entries using 296 bytes of memory
0 BGP route-map cache entries using 0 bytes of memory
0 BGP filter-list cache entries using 0 bytes of memory
Bitfield cache entries: current 1 (at peak 2) using 28 bytes of memory
BGP using 508 total bytes of memory
BGP activity 24/23 prefixes, 24/23 paths, scan interval 60 secs
Neighbor      V    AS MsgRcvd MsgSent   TblVer  InQ OutQ Up/Down  State/PfxRcd
192.0.2.2      4 65100  20335    20329     0   0   0 00:02:04  Idle (PfxCt)
R200#
```

Refer to the exhibit. In which circumstance does the BGP neighbor remain in the idle condition?

- A. if prefixes are not received from the BGP peer
- B. if prefixes reach the maximum limit
- C. if a prefix list is applied on the inbound direction
- D. if prefixes exceed the maximum limit

Correct Answer: D

Section: Layer 3 Technologies Explanation

Explanation/Reference:

QUESTION 14 Which attribute eliminates LFAs that belong to protected paths in situations where links in a network are connected through a common fiber?

- A. shared risk link group-disjoint
- B. linecard-disjoint
- C. lowest-repair-path-metric
- D. interface-disjoint

Correct Answer: B

Section: Layer 3 Technologies Explanation

Explanation/Reference:

Reference: https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/iproute_eigrp/configuration/xr-3s/asr1000/ire-xr-3s-asr1000/ire-ipfrr.html

QUESTION 15


```
* Jun 28 14:41:57: %BGP-5-ADJCHANGE: neighbor 192.168.2.2 Down User reset
* Jun 28 14:41:57: %BGP_SESSION-5-ADJCHANGE: neighbor 192.168.2.2 IPv4 Unicast
topology base removed from session User reset
* Jun 28 14:41:57: %BGP-5-ADJCHANGE: neighbor 192.168.2.2 Up
R1#show clock
*15:42:00.506 CET Fri Jun 28 2019
```

Refer to the exhibit. An engineer is troubleshooting BGP on a device but discovers that the clock on the device does not correspond to the time stamp of the log entries.

Which action ensures consistency between the two times?

- A. Configure the **service timestamps log uptime** command in global configuration mode.
- B. Configure the **logging clock synchronize** command in global configuration mode.
- C. Configure the **service timestamps log datetime localtime** command in global configuration mode.
- D. Make sure that the clock on the device is synchronized with an NTP server.

Correct Answer: D

Section: Layer 3 Technologies Explanation

Explanation/Reference:

QUESTION 16

Refer to the exhibit. What is the result of applying this configuration?

```
R1#show policy-map control-plane
Control Plane
  Service-policy input: CoPP-BGP
    Class-map: BGP (match all)
      2716 packets, 172071 bytes
      5 minute offered rate 0000 bps, drop rate 0000 bps
      Match: access-group name BGP
      drop

    Class-map: class-default (match-any)
      5212 packets, 655966 bytes
      5 minute offered rate 0000 bps, drop rate 0000 bps
      Match: any
```

- A. The router can form BGP neighborships with any other device.
- B. The router cannot form BGP neighborships with any other device.
- C. The router cannot form BGP neighborships with any device that is matched by the access list named "BGP".
- D. The router can form BGP neighborships with any device that is matched by the access list named "BGP".

Correct Answer: A

Section: Layer 3 Technologies

Explanation

Explanation/Reference:

QUESTION 17 Which command displays the IP routing table information that is associated with VRF-Lite?

- A. `show ip vrf`
- B. `show ip route vrf`
- C. `show run vrf`
- D. `show ip protocols vrf`

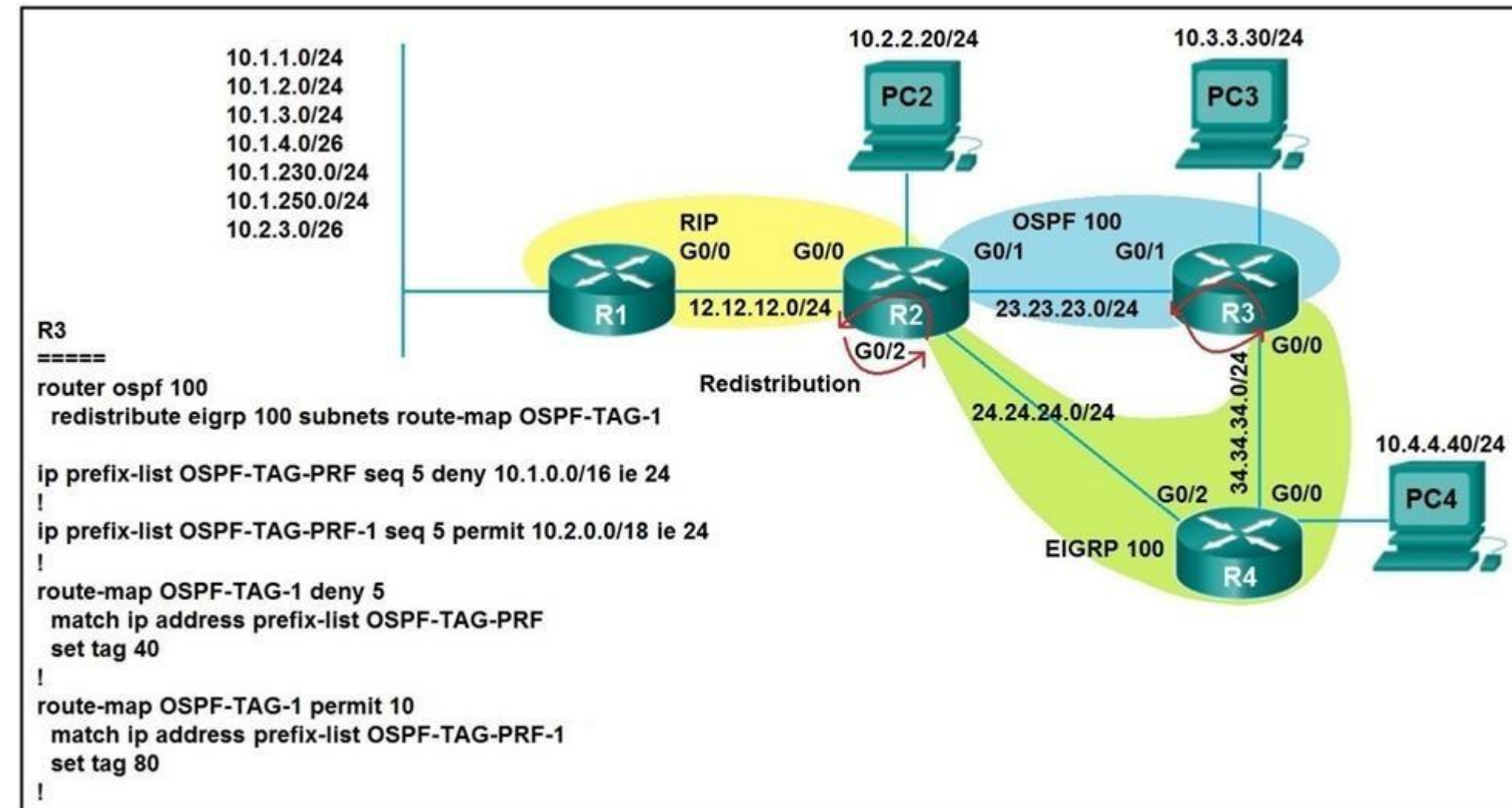
Correct Answer: B

Section: Layer 3 Technologies Explanation

Explanation/Reference:

Reference: <https://www.cisco.com/c/en/us/td/docs/switches/lan/catalyst4500/12-2/50sg/configuration/guide/Wrapper-46SG/vrf.html#wp1045708>

QUESTION 18



Refer to the exhibit. Which subnet is redistributed from EIGRP to OSPF routing protocols?

- A. 10.2.2.0/24
- B. 10.1.4.0/26C. 10.1.2.0/24
- D. 10.2.3.0/26

Correct Answer: A

Section: Layer 3 Technologies Explanation

Explanation/Reference:

QUESTION 19 Which configuration adds an IPv4 interface to an OSPFv3 process in OSPFv3 address family configuration?

- A. **router ospfv3 1 address-family ipv4**
- B. **Router(config-router)#ospfv3 1 ipv4 area 0**
- C. **Router(config-if)#ospfv3 1 ipv4 area 0**
- D. **router ospfv3 1 address-family ipv4 unicast**

Correct Answer: D

Section: Layer 3 Technologies Explanation

Explanation/Reference:

Reference: https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/iproute_ospf/configuration/xr-3s/iro-xe-3s-book/ip6-route-ospfv3-add-fam-xe.html

QUESTION 20

```
R1(config)#route-map ADD permit 20
R1(config-route-map)#set tag 1

R1(config)#router ospf1
R1(config-router)#redistribute rip subnets route-map ADD
```

Refer to the exhibit. Which statement about R1 is true?

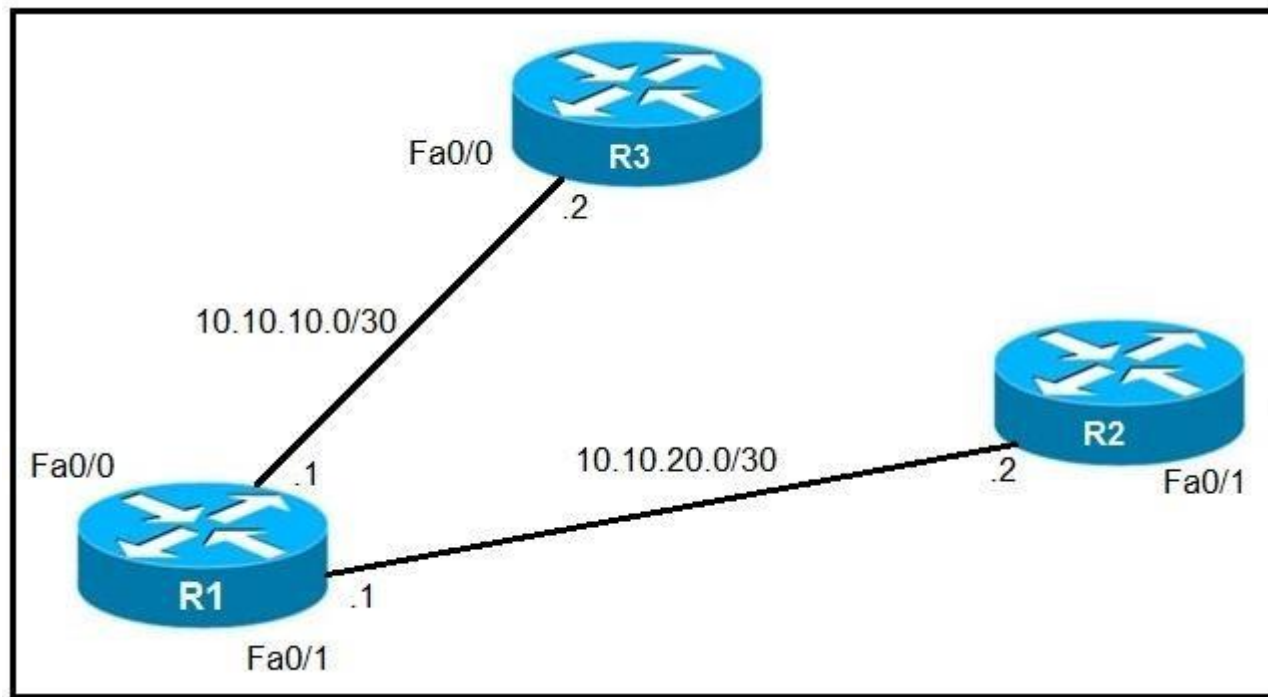
- A. OSPF redistributes RIP routes only if they have a tag of one.
- B. RIP learned routes are distributed to OSPF with a tag value of one.
- C. R1 adds one to the metric for RIP learned routes before redistributing to OSPF.
- D. RIP routes are redistributed to OSPF without any changes.

Correct Answer: B

Section: Layer 3 Technologies Explanation

Explanation/Reference:

QUESTION 21



Refer to the exhibit. An IP SLA was configured on router R1 that allows the default route to be modified in the event that Fa0/0 loses reachability with the router R3 Fa0/0 interface. The route has changed to flow through router R2.

Which debug command is used to troubleshoot this issue?

- A. `debug ip flow`
- B. `debug ip sla error`
- C. `debug ip routing`
- D. `debug ip packet`

Correct Answer: C

Section: Layer 3 Technologies Explanation

Explanation/Reference:

QUESTION 22 Which configuration enables the VRF that is labeled "Inet" on FastEthernet0/0?

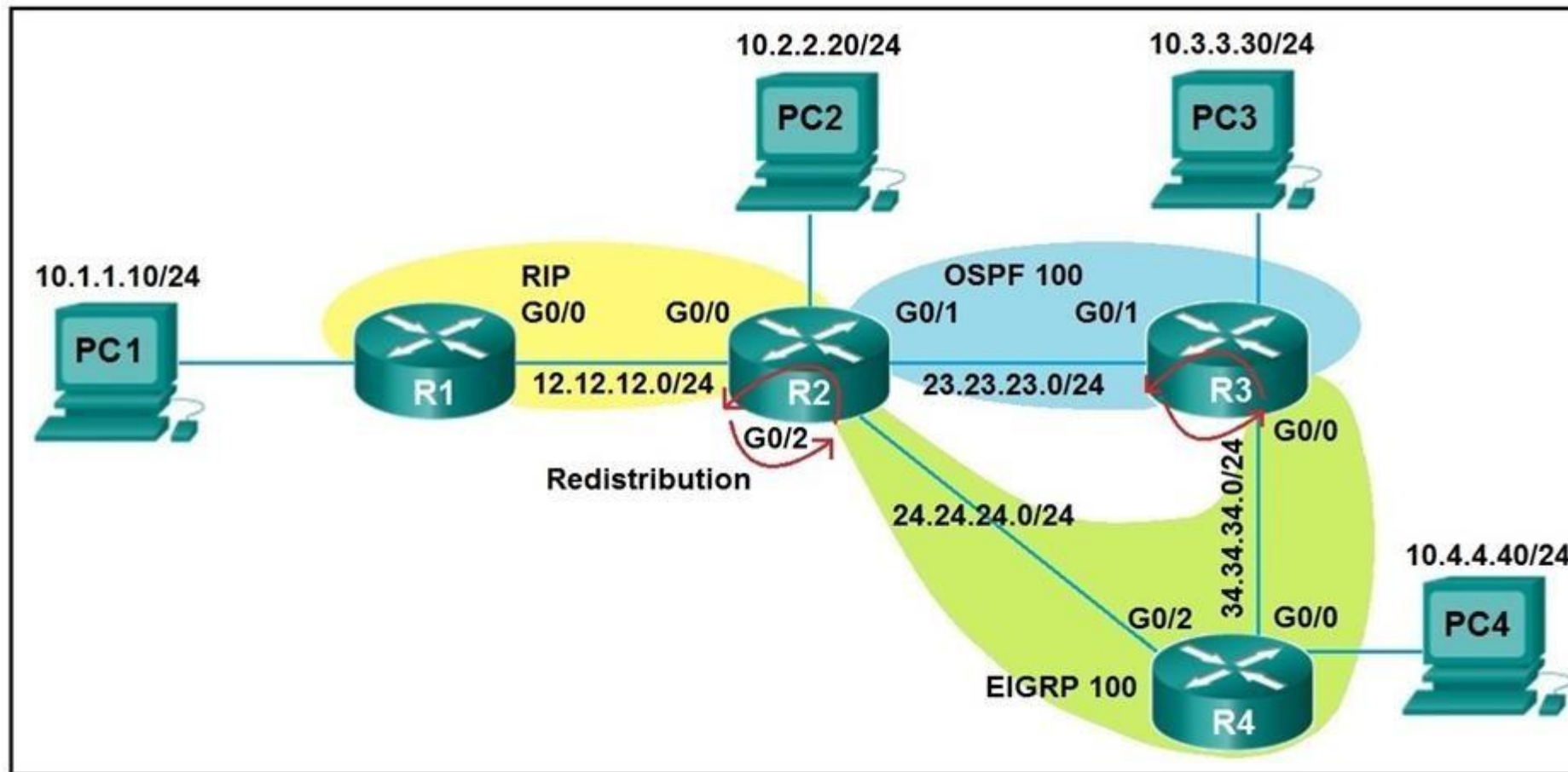
- A. `R1(config)# ip vrf Inet`
`R1(config-vrf)#ip vrf FastEthernet0/0`
- B. `R1(config)#ip vrf Inet FastEthernet0/0`
- C. `R1(config)# ip vrf Inet`
`R1(config-vrf)#interface FastEthernet0/0`
`R1(config-if)#ip vrf forwarding Inet`
- D. `R1(config)#router ospf 1 vrf Inet`
`R1(config-router)#ip vrf forwarding FastEthernet0/0`

Correct Answer: C

Section: Layer 3 Technologies Explanation

Explanation/Reference:

QUESTION 23



Refer to the exhibit. After redistribution is enabled between the routing protocols; PC2, PC3, and PC4 cannot reach PC1.

Which action can the engineer take to solve the issue so that all the PCs are reachable?

- A. Set the administrative distance 100 under the RIP process on R2.
- B. Filter the prefix 10.1.1.0/24 when redistributed from OSPF to EIGRP.
- C. Filter the prefix 10.1.1.0/24 when redistributed from RIP to EIGRP.
- D. Redistribute the directly connected interfaces on R2.

Correct Answer: B

Section: Layer 3 Technologies Explanation

Explanation/Reference:

QUESTION 24

```
router bgp 100
!
 neighbor 10.222.1.1 route-map SET-WEIGHT in
 neighbor 10.222.1.1 remote-as 1
!
ip as-path access-list 200 permit ^690$
ip as-path access-list 200 permit ^1800
!
route-map SET-WEIGHT permit 10
 match as-path 200
 set local-preference 250
 set weight 200
```

Refer to the exhibit. A router is receiving BGP routing updates from multiple neighbors for routes in AS 690.

What is the reason that the router still sends traffic that is destined to AS 690 to a neighbor other than 10.222.1.1?

- A. The local preference value in another neighbor statement is higher than 250.
- B. The local preference value should be set to the same value as the weight in the route map.
- C. The route map is applied in the wrong direction.
- D. The weight value in another neighbor statement is higher than 200.

Correct Answer: D

Section: Layer 3 Technologies Explanation

Explanation/Reference:

Reference: https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/iproute_bgp/configuration/xr-3se/3850/irg-xe-3se-3850-book/irg-prefix-filter.html

QUESTION 25 Which command allows traffic to load-balance in an MPLS Layer 3 VPN configuration?

- A. **multi-paths eibgp 2**
- B. **maximum-paths 2**
- C. **maximum-paths ibgp 2**
- D. **multi-paths 2**

Correct Answer: C

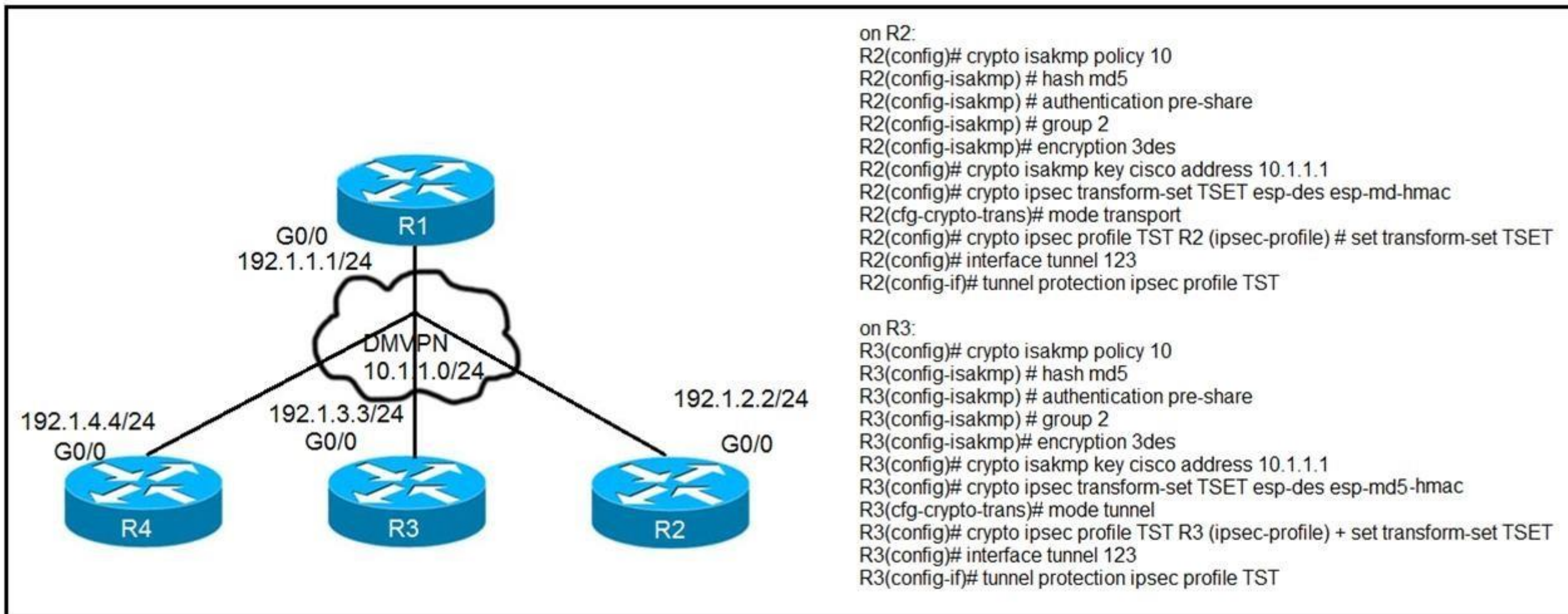
Section: VPN Technologies Explanation

Explanation/Reference:

Reference: https://www.cisco.com/c/en/us/td/docs/switches/datacenter/sw/5_x/nx-os/mpls/configuration/guide/mps_cg/mp_vpn_multipath.html

QUESTION 26

Refer to the exhibit. After applying IPsec, the engineer observed that the DMVPN tunnel went down, and both spoke-to-spoke and hub were not establishing. Which two actions resolve the issue? (Choose two.)



- A. Change the mode from **mode tunnel** to **mode transport** on R3.
- B. Remove the **crypto isakmp key cisco address 10.1.1.1** on R2 and R3.
- C. Configure the **crypto isakmp key cisco address 192.1.1.1** on R2 and R3.
- D. Configure the **crypto isakmp key cisco address 0.0.0.0** on R2 and R3.
- E. Change the mode from **mode transport** to **mode tunnel** on R2.

Correct Answer: AD

Section: VPN Technologies Explanation

Explanation/Reference:

QUESTION 27 Which statement about route distinguishers in an MPLS network is true?

- A. Route distinguishers allow multiple instances of a routing table to coexist within the edge router.
- B. Route distinguishers are used for label bindings.
- C. Route distinguishers make a unique VPNv4 address across the MPLS network.
- D. Route distinguishers define which prefixes are imported and exported on the edge router.

Correct Answer: C

Section: VPN Technologies

Explanation

Explanation/Reference:

QUESTION 28 Which statement about MPLS LDP router ID is true?

- A. If not configured, the operational physical interface is chosen as the router ID even if a loopback is configured.
- B. The loopback with the highest IP address is selected as the router ID.
- C. The MPLS LDP router ID must match the IGP router ID.
- D. The **force** keyword changes the router ID to the specified address without causing any impact.

Correct Answer: B

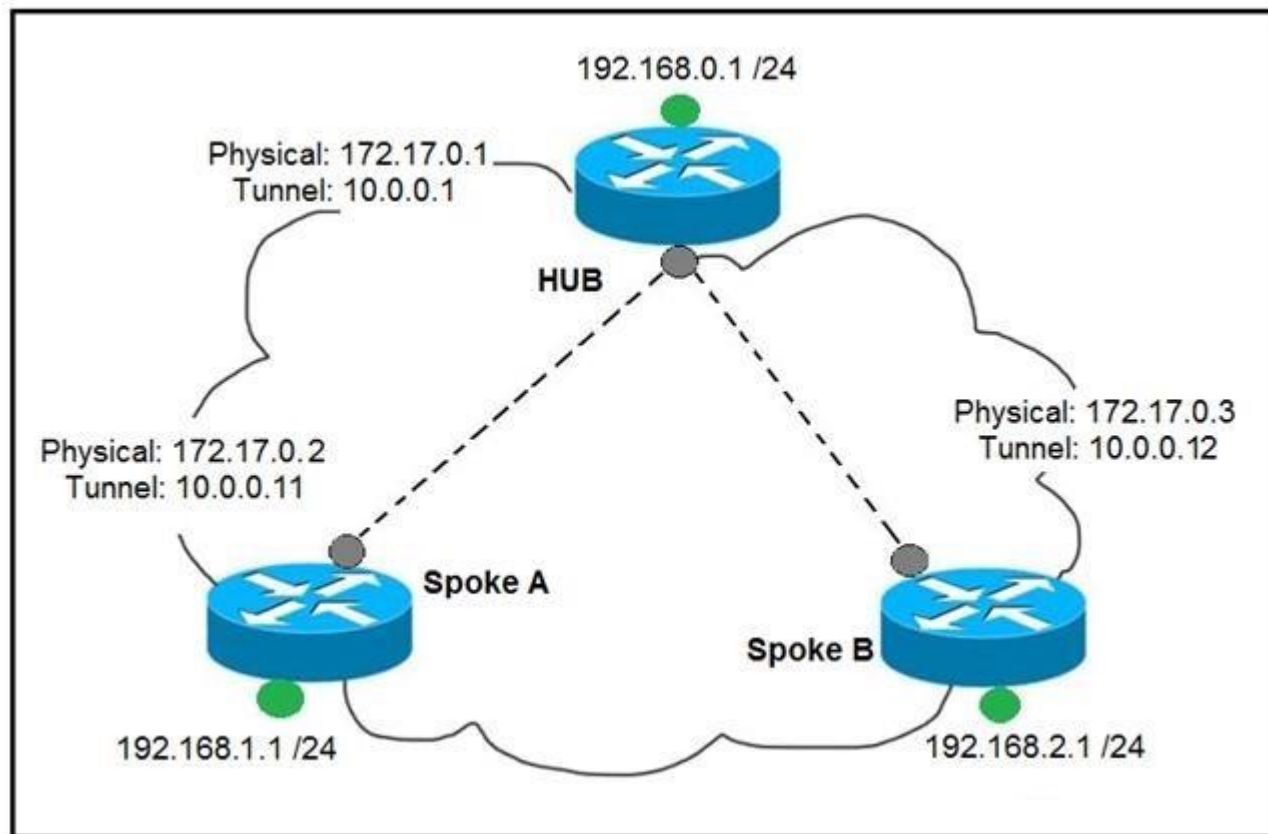
Section: VPN Technologies Explanation

Explanation/Reference:

Reference: https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/mp_ldp/configuration/12-4m/mp-ldp-12-4m-book.pdf

QUESTION 29

Refer to the exhibit. Which interface configuration must be configured on the spoke A router to enable a dynamic DMVPN tunnel with the spoke B router?




```
interface Tunnel0
description mGRE – DMVPN Tunnel
ip address 10.0.0.11 255.255.255.0
ip nhrp map multicast dynamic
ip nhrp network-id 1
tunnel source 10.0.0.1
tunnel destination FastEthernet 0/0
tunnel mode gre multipoint
```

```
interface Tunnel0
ip address 10.0.0.11 255.255.255.0
ip nhrp network-id 1
tunnel source FastEthernet 0/0
tunnel mode gre multipoint
ip nhrp nhs 10.0.0.1
ip nhrp map 10.0.0.1 172.17.0.1
```

```
interface Tunnel0
ip address 10.1.0.11 255.255.255.0
ip nhrp network-id 1
tunnel source 1.1.1.10
ip nhrp map 10.0.0.11 172.17.0.2
tunnel mode gre
```

```
interface Tunnel0
ip address 10.0.0.11 255.255.255.0
ip nhrp map multicast static
ip nhrp network-id 1
tunnel source 10.0.0.1
tunnel mode gre multipoint
```

A.

B.

C.

D.

Correct Answer: B

Section: VPN Technologies Explanation

Explanation/Reference:

QUESTION 30 Which list defines the contents of an MPLS label?

- A. 20-bit label; 3-bit traffic class; 1-bit bottom stack; 8-bit TTL
- B. 32-bit label; 3-bit traffic class; 1-bit bottom stack; 8-bit TTL
- C. 20-bit label; 3-bit flow label; 1-bit bottom stack; 8-bit hop limit
- D. 32-bit label; 3-bit flow label; 1-bit bottom stack; 8-bit hop limit

Correct Answer: A

Section: VPN Technologies

Explanation

Explanation/Reference:

Reference: <https://tools.ietf.org/html/rfc5462>

QUESTION 31

Refer to the exhibit. What does the imp-null tag represent in the MPLS VPN cloud?

```
Router# show tag-switching tdp bindings
(...)
tib entry: 10.10.10.1/32, rev 31
    local binding: tag: 18
    remote binding: tsr: 10.10.10.1:0, tag: imp-null
    remote binding: tsr: 10.10.10.2:0, tag: 18
    remote binding: tsr: 10.10.10.6:0, tag: 21
tib entry: 10.10.10.2/32, rev 22
    local binding: tag: 17
    remote binding: tsr: 10.10.10.2:0, tag: imp-null
    remote binding: tsr: 10.10.10.1:0, tag: 19
    remote binding: tsr: 10.10.10.6:0, tag: 22
```

- A. Pop the label
- B. Impose the label
- C. Include the EXP bit
- D. Exclude the EXP bit

Correct Answer: A

Section: VPN Technologies Explanation

Explanation/Reference:

QUESTION 32

DRAG DROP

Drag and drop the MPLS terms from the left onto the correct definitions on the right.

Select and Place:

Correct Answer:

Section: VPN Technologies Explanation

Explanation/Reference:

QUESTION 33 Which transport layer protocol is used to form LDP sessions?

- A. UDP
- B. SCTP
- C. TCP
- D. RDP

Correct Answer: C

Section: VPN Technologies Explanation

Explanation/Reference:

QUESTION 34

DRAG DROP

Drag and drop the MPLS VPN concepts from the left onto the correct descriptions on the right.

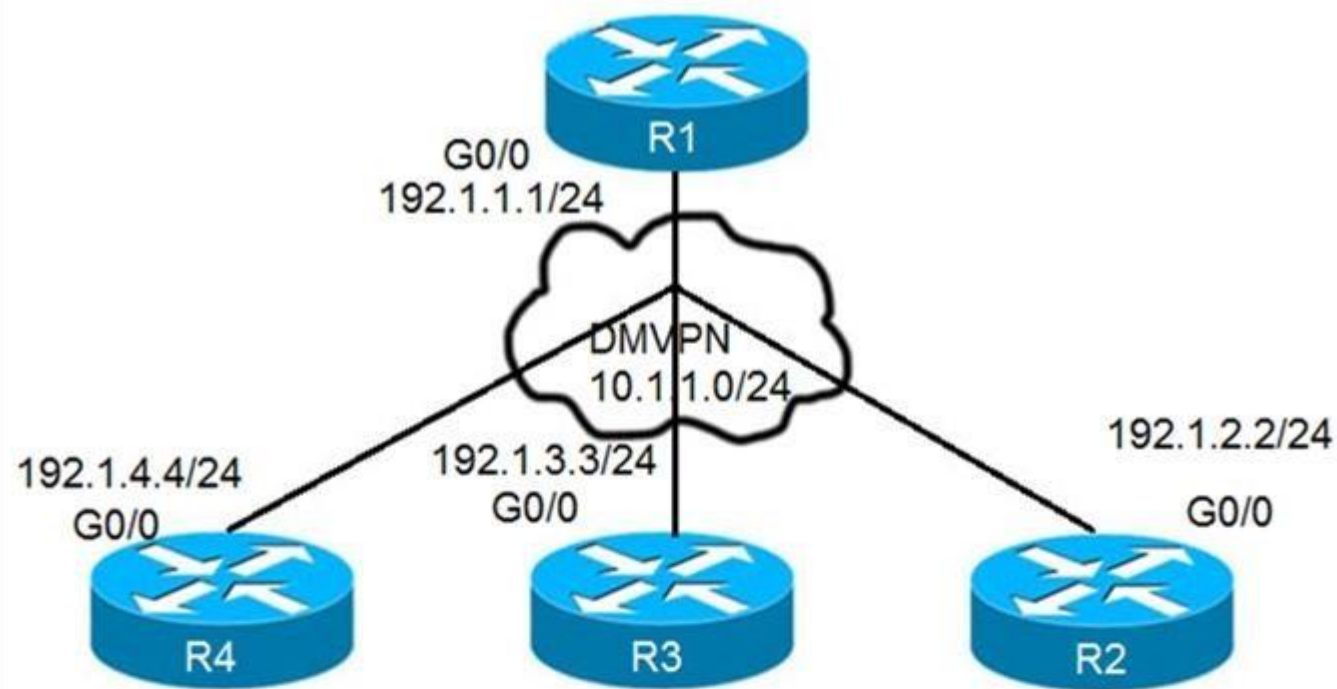
Select and Place:

Correct Answer:

Section: VPN Technologies Explanation

Explanation/Reference:

QUESTION 35



On R1:

```

R1(config)# interface tunnel 1
R1(config-if)# ip address 10.1.1.1 255.255.255.0
R1(config-if)# tunnel source 192.1.1.1
R1(config-if)# tunnel mode gre multipoint
R1(config-if)# ip nhrp network-id 111
  
```

On R2:

```

R2(config)# interface tunnel 1
R2(config-if)# ip address 10.1.1.2 255.255.255.0
R2(config-if)# tunnel source FastEthernet0/0
R2(config-if)# tunnel mode gre multipoint
R2(config-if)# ip nhrp network-id 222
R2(config-if)# ip nhrp nhs 10.1.1.1
R2(config-if)# ip nhrp map 10.1.1.1 192.1.1.1
  
```

On R3:

```

R3(config)# interface tunnel 1
R3(config-if)# ip address 10.1.1.3 255.255.255.0
R3(config-if)# tunnel source FastEthernet0/0
R3(config-if)# tunnel mode gre multipoint
R3(config-if)# ip nhrp network-id 333 R3(config-if)# ip nhrp nhs 10.1.1.1
R3(config-if)# ip nhrp map 10.1.1.1 192.1.1.1
  
```

On R4:

```

R4(config)# interface tunnel 1
R4(config-if)# ip address 10.1.1.4 255.255.255.0
R4(config-if)# tunnel source FastEthernet0/0
R4(config-if)# tunnel mode gre multipoint
R4(config-if)# ip nhrp network-id 444
R4(config-if)# ip nhrp nhs 10.1.1.1
R4(config-if)# ip nhrp map 10.1.1.1 192.1.1.1
  
```

Refer to the exhibits. Phase-3 tunnels cannot be established between spoke-to-spoke in DMVPN.

Which two commands are missing? (Choose two.)

- A. The **ip nhrp redirect** command is missing on the spoke routers.
- B. The **ip nhrp shortcut** command is missing on the spoke routers.
- C. The **ip nhrp redirect** command is missing on the hub router.
- D. The **ip nhrp shortcut** command is missing on the hub router.
- E. The **ip nhrp map** command is missing on the hub router.

Correct Answer: BC

Section: VPN Technologies Explanation

Explanation/Reference:

QUESTION 36 Which protocol is used to determine the NBMA address on the other end of a tunnel when mGRE is used?

- A. NHRP
- B. IPsec
- C. MP-BGP
- D. OSPF

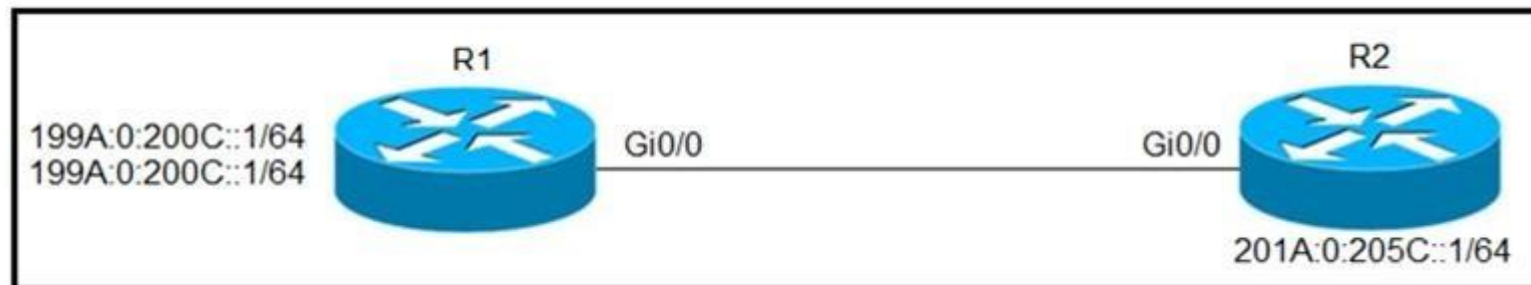
Correct Answer: A

Section: VPN Technologies Explanation

Explanation/Reference:

QUESTION 37

Refer to the exhibit. Which configuration denies Telnet traffic to router 2 from 198A:0:200C::1/64?



```
ipv6 access-list Deny_Telnet sequence 10 deny tcp host 198A:0:200C::1/64 host
201A:0:205C::1/64 eq telnet
!
int Gi0/0
  ipv6 traffic-filter Deny_Telnet in
```

A. !

```
ipv6 access-list Deny_Telnet sequence 10 deny tcp host 198A:0:200C::1/64 host  
201A:0:205C::1/64 eq telnet
```

```
!
```

```
int Gi0/0
```

```
  ipv6 access-map Deny_Telnet in
```

```
!
```

```
ipv6 access-list Deny_Telnet sequence 10 deny tcp host 198A:0:200C::1/64 host  
201A:0:205C::1/64
```

```
!
```

```
int Gi0/0
```

```
  ipv6 access-map Deny_Telnet in
```

```
!
```

```
ipv6 access-list Deny_Telnet sequence 10 deny tcp host 198A:0:200C::1/64 host  
201A:0:205C::1/64
```

```
!
```

```
int Gi0/0
```

```
  ipv6 traffic-filter Deny_Telnet in
```

```
!
```

B.

C.

D.

Correct Answer: A

Section: Infrastructure Security

Explanation

Explanation/Reference:

QUESTION 38

```
access-list 100 deny tcp any any eq 465
access-list 100 deny tcp any eq 465 any
access-list 100 permit tcp any any eq 80
access-list 100 permit tcp any eq 80 any
access-list 100 permit udp any any eq 443
access-list 100 permit udp any eq 443 any
```

Refer to the exhibit. During troubleshooting it was discovered that the device is not reachable using a secure web browser.

What is needed to fix the problem?

- A. permit tcp port 443
- B. permit udp port 465
- C. permit tcp port 465
- D. permit tcp port 22

Correct Answer: A

Section: Infrastructure Security

Explanation

Explanation/Reference:

QUESTION 39

DRAG DROP

Drag and drop the packet types from the left onto the correct descriptions on the right.

Select and Place:

Correct Answer:

Section: Infrastructure Security

Explanation

Explanation/Reference:

QUESTION 40

DRAG DROP

Drag and drop the addresses from the left onto the correct IPv6 filter purposes on the right.

Select and Place:

Correct Answer:

Section: Infrastructure Security

Explanation

Explanation/Reference:

QUESTION 41

Refer to the exhibit. An engineer is trying to configure local authentication on the console line, but the device is trying to authenticate using TACACS+.

Which action produces the desired configuration?


```
R1#show running-config | include aaa
aaa new-model
aaa authentication login default group tacacs+ local
aaa authentication login Console local
R1#show running-config | section line
line con 0
  logging synchronous
R1#
```

- A. Add the **aaa authentication login default none** command to the global configuration.
- B. Replace the capital "C" with a lowercase "c" in the **aaa authentication login Console local** command.
- C. Add the **aaa authentication login default group tacacs+ local-case** command to the global configuration.
- D. Add the **login authentication Console** command to the line configuration

Correct Answer: D

Section: Infrastructure Security

Explanation

Explanation/Reference:

QUESTION 42

Refer to the exhibit. An engineer is trying to connect to a device with SSH but cannot connect. The engineer connects by using the console and finds the displayed output when troubleshooting.

Which command must be used in configuration mode to enable SSH on the device?

```
R1#show ip ssh
SSH Disabled – version 1.99
%Please create RSA keys to enable SSH (and of atleast 768 bits for SSH v2).
Authentication timeout: 120 secs; Authentication retries: 3
Minimum expected Diffie Hellman key size: 1024 bits
IOS Keys in SECSH format (ssh-rsa, base64 encoded) : NONE
R1#
```

- A. **no ip ssh disable**
- B. **ip ssh enable**
- C. **ip ssh version 2**
- D. **crypto key generate rsa**

Correct Answer: D

Section: Infrastructure Security

Explanation

Explanation/Reference:

QUESTION 43 Which statement about IPv6 ND inspection is true?

- A. It learns and secures bindings for stateless autoconfiguration addresses in Layer 3 neighbor tables.
- B. It learns and secures bindings for stateless autoconfiguration addresses in Layer 2 neighbor tables.

- C. It learns and secures bindings for stateful autoconfiguration addresses in Layer 3 neighbor tables.
- D. It learns and secures bindings for stateful autoconfiguration addresses in Layer 2 neighbor tables.

Correct Answer: B

Section: Infrastructure Security

Explanation

Explanation/Reference:

Reference: https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/ipv6_fhsec/configuration/15-s/ipv6f-15-s-book/ipv6-snooping.pdf

QUESTION 44

While troubleshooting connectivity issues to a router, these details are noticed:

- Standard pings to all router interfaces, including loopbacks, are successful.
- Data traffic is unaffected.
- SNMP connectivity is intermittent.
- SSH is either slow or disconnects frequently.

Which command must be configured first to troubleshoot this issue?

- A. **show policy-map control-plane**
- B. **show policy-map**
- C. **show interface | inc drop**
- D. **show ip route**

Correct Answer: A

Section: Infrastructure Security

Explanation

Explanation/Reference:

QUESTION 45

```
TAC+: TCP/IP open to 171.68.118.101/49 failed --
Destination unreachable; gateway or host down
AAA/AUTHEN (2546660185): status = ERROR
AAA/AUTHEN/START (2546660185): Method=LOCAL
AAA/AUTHEN (2546660185): status = FAIL
As1 CHAP: Unable to validate Response. Username chapuser: Authentication failure
```

Refer to the exhibit. Why is user authentication being rejected?

- A. The TACACS+ server expects "user", but the NT client sends "domain/user". B. The TACACS+ server refuses the user because the user is set up for CHAP.
- C. The TACACS+ server is down, and the user is in the local database.
- D. The TACACS+ server is down, and the user is not in the local database.

Correct Answer: D

Section: Infrastructure Security

Explanation

Explanation/Reference:

Reference: <https://www.cisco.com/c/en/us/support/docs/security-vpn/terminal-access-controller-access-control-system-tacacs-/13864-tacacs-pppdebug.html>

QUESTION 46

```
Cat3850-Stack-2# show policy-map
```

```
Policy Map LIMIT_BGP
```

```
Class BGP
```

```
drop
```

```
Policy Map SHAPE_BGP
```

```
Class BGP
```

```
Average Rate Traffic Shaping
```

```
cir 10000000 (bps)
```

```
Policy Map POLICE_BGP
```

```
Class BGP
```

```
police cir 1000k bc 1500
```

```
conform-action transmit
```

```
exceed-action transmit
```

```
Policy Map COPP
```

```
Class BGP
```

```
police cir 1000k bc 1500
```

```
conform-action transmit
```

```
exceed-action drop
```

Refer to the exhibit. Which control plane policy limits BGP traffic that is destined to the CPU to 1 Mbps and ignores BGP traffic that is sent at higher rate?

- A. **policy-map SHAPE_BGP**
- B. **policy-map LIMIT_BGP**
- C. **policy-map POLICE_BGP**
- D. **policy-map COPP**

Correct Answer: D

Section: Infrastructure Security

Explanation

Explanation/Reference:

QUESTION 47 Which statement about IPv6 RA Guard is true?

- A. It does not offer protection in environments where IPv6 traffic is tunneled.
- B. It cannot be configured on a switch port interface in the ingress direction.
- C. Packets that are dropped by IPv6 RA Guard cannot be spanned.
- D. It is not supported in hardware when TCAM is programmed.

Correct Answer: A

Section: Infrastructure Security

Explanation

Explanation/Reference:

Reference: https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/ipv6_fhsec/configuration/xe-16/ip6f-xe-16-book/ip6-ra-guard.pdf

QUESTION 48 An engineer is trying to copy an IOS file from one router to another router by using TFTP.

Which two actions are needed to allow the file to copy? (Choose two.)

- A. Copy the file to the destination router with the **copy tftp: flash:** command
- B. Enable the TFTP server on the source router with the **tftp-server flash: <filename>** command
- C. TFTP is not supported in recent IOS versions, so an alternative method must be used
- D. Configure a user on the source router with the **username tftp password tftp** command
- E. Configure the TFTP authentication on the source router with the **tftp-server authentication local** command

Correct Answer: AB

Section: Infrastructure Services

Explanation

Explanation/Reference:

QUESTION 49

Refer to the exhibit. Users report that IP addresses cannot be acquired from the DHCP server. The DHCP server is configured as shown. About 300 total nonconcurrent users are using this DHCP server, but none of them are active for more than two hours per day.

Which action fixes the issue within the current resources?

```
R1#show running-config | section dhcp
ip dhcp excluded-address 192.168.1.1 192.168.1.49
ip dhcp pool DHCP
  network 192.168.1.0 255.255.255.0
  default-router 192.168.1.1
  dns-server 8.8.8.8
  lease 0 12
```

- A. Modify the subnet mask to the **network 192.168.1.0 255.255.254.0** command in the DHCP pool
- B. Configure the DHCP lease time to a smaller value
- C. Configure the DHCP lease time to a bigger value
- D. Add the **network 192.168.2.0 255.255.255.0** command to the DHCP pool

Correct Answer: B

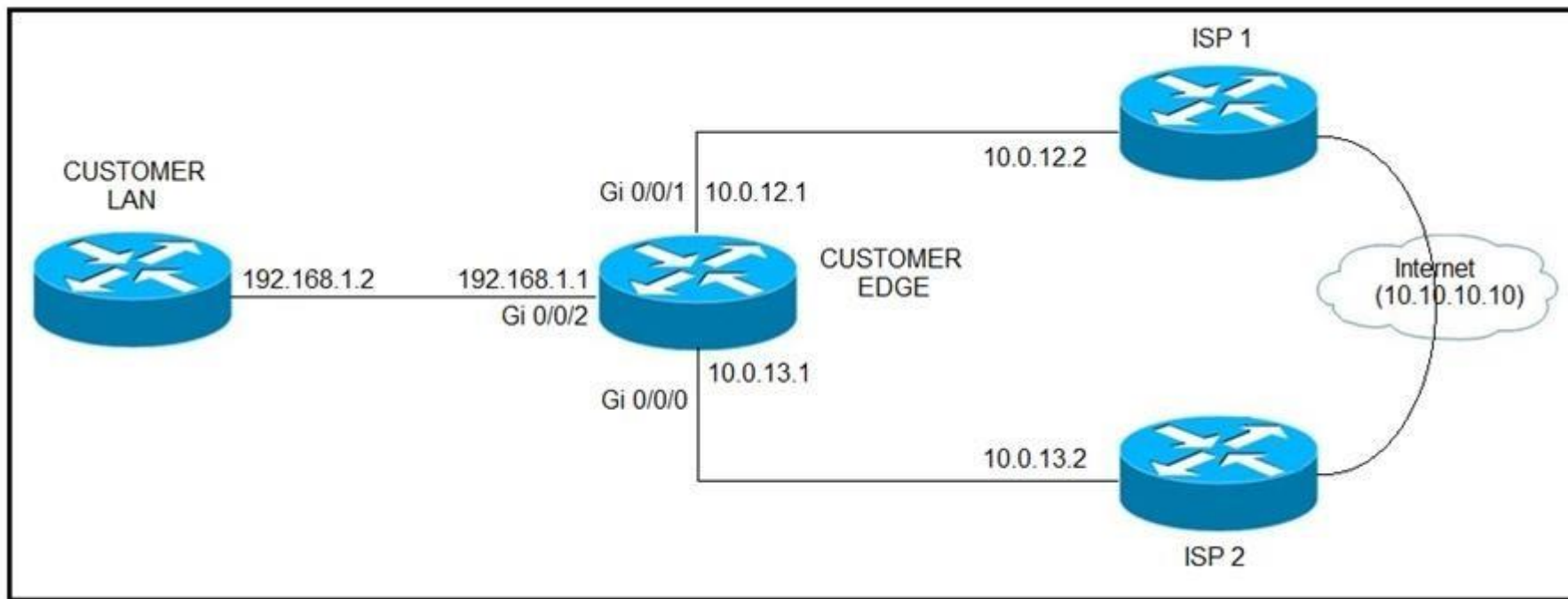
Section: Infrastructure Services

Explanation

Explanation/Reference:

QUESTION 50 Refer to the exhibit. ISP 1 and ISP 2 directly connect to the Internet. A customer is tracking both ISP links to achieve redundancy and cannot see the Cisco IOS IP SLA tracking output on the router console.

Which command is missing from the IP SLA configuration?



- A. Start-time 00:00
- B. Start-time 0
- C. Start-time immediately
- D. Start-time now

Correct Answer: D

Section: Infrastructure Services

Explanation

Explanation/Reference:

Reference: https://www.cisco.com/c/en/us/td/docs/ios-xml/ios/ipsla/configuration/15-mt/sla-15-mt-book/sla_icmp_echo.html

QUESTION 51 Refer to the exhibit. An administrator noticed that after a change was made on R1, the timestamps on the system logs did not match the clock.

What is the reason for this error?

```
service timestamps debug datetime msec
service timestamps log datetime
clock timezone MST -7 0
clock summer-time MST recurring
ntp authentication-key 1 md5 00101A0B0152181206224747071E 7
ntp server 10.10.10.10
```

R1#show clock

*06:13:44.045 MST Sun Dec 30 2018

R1#conf t

Enter configuration commands, one per line. End with CNTL/Z.

R1(config) #logging host 10.10.10.20

R1(config) #end

R1#

*Dec 30 13:15:28: %SYS-5-CONFIG_I: Configured from console by console

R1#

*Dec 30 13:15:28: %SYS-6-LOGGINGHOST_STARTSTOP: Logging to host 10.10.10.20 port 514
started – CLI initiated

- A. An authentication error with the NTP server results in an incorrect timestamp.
- B. The keyword localtime is not defined on the **timestamp service** command.
- C. The NTP server is in a different time zone.
- D. The system clock is set incorrectly to summer-time hours.

Correct Answer: A

Section: Infrastructure Services

Explanation

Explanation/Reference:

QUESTION 52

DRAG DROP

Drag and drop the DHCP messages from the left onto the correct uses on the right.

Select and Place:

Correct Answer:

Section: Infrastructure Services

Explanation

Explanation/Reference:

Reference:

<https://www.cisco.com/c/en/us/support/docs/ip/dynamic-address-allocation-resolution/27470-100.html> **QUESTION 53**

A network engineer is investigating a flapping (up/down) interface issue on a core switch that is synchronized to an NTP server. Log output currently does not show the time of the flap.

Which command allows the logging on the switch to show the time of the flap according to the clock on the device?

- A. **service timestamps log uptime**
- B. **clock summer-time mst recurring 2 Sunday mar 2:00 1 Sunday nov 2:00**
- C. **service timestamps log datetime localtime show-timezone**
- D. **clock calendar-valid**

Correct Answer: C

Section: Infrastructure Services

Explanation

Explanation/Reference:

QUESTION 54

When provisioning a device in Cisco DNA Center, the engineer sees the error message “Cannot select the device. Not compatible with template”.

What is the reason for the error?

- A. The template has an incorrect configuration.
- B. The software version of the template is different from the software version of the device.
- C. The changes to the template were not committed.
- D. The tag that was used to filter the templates does not match the device tag.

Correct Answer: D

Section: Infrastructure Services

Explanation

Explanation/Reference:

Reference: https://www.cisco.com/c/en/us/td/docs/cloud-systems-management/network-automation-and-management/dna-center/1-2-10/user_guide/b_cisco_dna_center_ug_1_2_10/b_dnac_ug_1_2_10_chapter_0111.html

QUESTION 55

While working with software images, an engineer observes that Cisco DNA Center cannot upload its software image directly from the device.

Why is the image not uploading?

- A. The device must be resynced to Cisco DNA Center.
- B. The software image for the device is in install mode.
- C. The device has lost connectivity to Cisco DNA Center.
- D. The software image for the device is in bundle mode

Correct Answer: B

Section: Infrastructure Services

Explanation

Explanation/Reference:

Reference: https://www.cisco.com/c/en/us/td/docs/cloud-systems-management/network-automation-and-management/dna-center/1-2-10/user_guide/b_cisco_dna_center_ug_1_2_10/b_dnac_ug_1_2_10_chapter_0100.html

QUESTION 56

An engineer configured the wrong default gateway for the Cisco DNA Center enterprise interface during the install.

Which command must the engineer run to correct the configuration?

- A. **sudo maglev-config update**
- B. **sudo maglev install config update**
- C. **sudo maglev reinstall**

D. **sudo update config install**

Correct Answer: A

Section: Infrastructure Services

Explanation

Explanation/Reference:

QUESTION 57

DRAG DROP

Drag and drop the SNMP attributes in Cisco IOS devices from the left onto the correct SNMPv2c or SNMPv3 categories on the right.

Select and Place:

Correct Answer:

Section: Infrastructure Services

Explanation

Explanation/Reference:

QUESTION 58

```
R1(config) # do show running-config | section line|username
username cisco secret 5 $1$yb/o$L3G5cXODxpYMSJ70PzEyo0
line con 0
  logging synchronous
line vty 0 4
  login local
  transport input telnet
R1(config) # logging console 7
R1(config) # do debug aaa authentication
R1(config) #
```

Refer to the exhibit. An administrator that is connected to the console does not see debug messages when remote users log in.

Which action ensures that debug messages are displayed for remote logins?

- A. Enter the **transport input ssh** configuration command.
- B. Enter the **terminal monitor exec** command.
- C. Enter the **logging console debugging** configuration command.
- D. Enter the **aaa new-model** configuration command.

Correct Answer: C

Section: Infrastructure Services

Explanation

Explanation/Reference:

QUESTION 59


```
snmp-server community ciscotest1
snmp-server host 192.168.1.128 ciscotest
snmp-sever enable traps bgp
```

Refer to the exhibit. Network operations cannot read or write any configuration on the device with this configuration from the operations subnet.

Which two configurations fix the issue? (Choose two.)

- A. Configure SNMP **rw** permission in addition to community ciscotest.
- B. Modify access list 1 and allow operations subnet in the access list.
- C. Modify access list 1 and allow SNMP in the access list.
- D. Configure SNMP **rw** permission in addition to version 1.
- E. Configure SNMP **rw** permission in addition to community ciscotest 1.

Correct Answer: AB

Section: Infrastructure Services

Explanation

Explanation/Reference:

QUESTION 60

```
config t
flow record v4_r1
match ipv4 tos
match ipv4 protocol
match ipv4 source address
match ipv4 destination address
match transport source-port
match transport destination-port
collect counter bytes long
collect counter packets long
!
flow exporter EXPORTER-1
destination 172.16.10.2
transport udp 90
exit
!
flow monitor FLOW-MONITOR-1
record v4_r1
exit
!
ip cef
!
interface Ethernet0/0.1
ip address 172.16.6.2 255.255.255.0
ip flow monitor FLOW-MONITOR-1 input
!
```

Refer to the exhibit. Why is the remote NetFlow server failing to receive the NetFlow data?

- A. The flow exporter is configured but is not used.
- B. The flow monitor is applied in the wrong direction.
- C. The flow monitor is applied to the wrong interface.
- D. The destination of the flow exporter is not reachable.

Correct Answer: D

Section: Infrastructure Services

Explanation

Explanation/Reference: