Vendor: Cisco

Exam Code: 300-510

Exam Name: Implementing Cisco Service Provider Advanced Routing Solutions (SPRI)

Version: DEMO

QUESTION 1
In a PIM-SM environment, which mechanism determines the traffic that a receiver receives?

A. The receiver explicitly requests its desired traffic from the RP on the shared tree.
B. The receiver explicitly requests traffic from a single source, which responds by forwarding all traffic.
C. The RP on the shared tree floods traffic out of all PIM configured interfaces.
D. The receiver explicitly requests traffic from each desired source, which responds by sending all traffic.

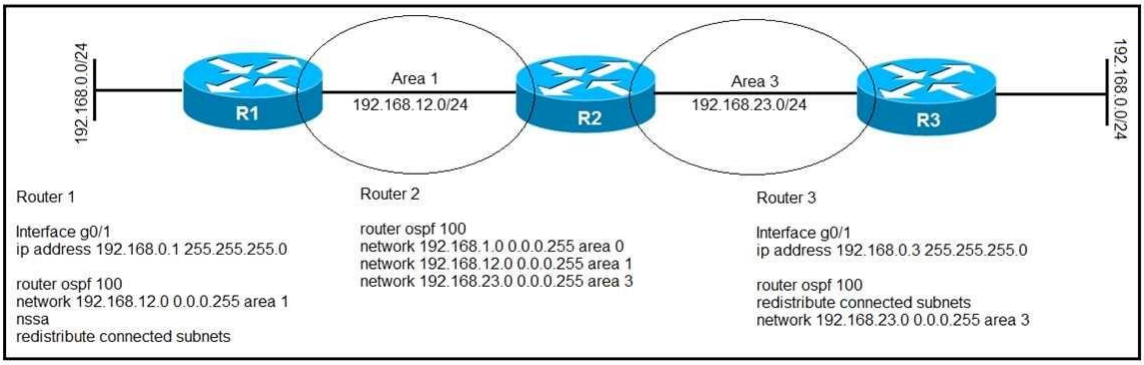
Answer: A
Explanation:
A shared tree is built first between receiver and the RP. The receiver is then able to switch to a Source tree as needed.

QUESTION 2
An engineer is troubleshooting a connectivity issue across the MPLS network and is verifying the forwarding behavior of packets.
Which table does the engineer look at to verify the forwarding behavior of an IP packet as it enters the MPLS network at the ingress LSR?

A. LFIB
B. LIB
C. RIB
D. FIB

Answer: D
Explanation:
FIB as edge LSR is the LER. LER will check the fib for the IP packet and if it needs to go via LSP there will be an entry for the Label. All in between LSRs will check the LFIB.

QUESTION 3
Refer to the exhibit. After troubleshooting an OSPF adjacency issue, routers 1, 2, and 3 have formed OSPF neighbor relationships.
Which statement about the configuration is true?



A. Router 2 receives a Type 5 LSAs from router 1 for its connected subnets
B. Router 2 uses router 3 as the next hop for 192.168.0.0/24
C. Router 2 uses router 1 as the next hop for 192.168.0.0/24

D. Router 2 receives a Type 7 LSAs from router 3 for its connected subnets

Answer: C
Explanation:
From IOS 15.1(2)S onwards, Cisco uses the OSPF path selection order is O > O IA > N1 > E1 > N2 > E2
https://www.cisco.com/c/en/us/support/docs/ip/open-shortest-path-first-ospf/212608-ospf-external-path-selection-external-t.html

QUESTION 4
Refer to the exhibit. A network operator is getting the route for 10.11.11 0/24 from two upstream providers on #XR3.
The network operator must configure #XR3 to force the 10.11.11.0/24 prefix to route via next hop of 10.0.0.9 as primary when available.
Which of these can the operator use the routing policy language for, to enforce this traffic forwarding path?

```
RP/0/0/CPU0:XR3#show bgp 10.11.11.0
Thu Jun 20 20:44:15.749 UTC
BGP routing table entry for 10.11.11.0/24
Versions:
  Process           bRIB/RIB     SendTblVer
  Speaker                 9              9
Paths: (2 available, best #2)
  Advertised to update-groups (with more than one peer):
        0.1
  Path #1: Received by speaker 0
  Not advertised to any peer
  1
        10.0.0.9 from 10.0.0.9 (192.168.0.1)
          Origin IGP, metric 0, localpref 100, valid, external
          Received Path ID 0, Local Path ID 0, version 0
          Origin-AS validity: not-found
  Path #2: Received by speaker 0
  Advertised to update-groups (with more than one peer):
        0.1
  1
        10.0.0.13 from 10.0.0.13 (192.168.0.2)
          Origin IGP, metric 0, localpref 100, weight 651, valid, external, best, group-best
          Received Path ID 0, Local Path ID 0, version 9
```

A. weight of 0 on the prefix coming from 192.168.0.2
B. lower local preference on the prefix coming from 192.168.0.2
C. higher local preference on the prefix coming from 192.168.0.1
D. weight of 100 on the prefix coming from 192.168.0.1

Answer: A
Explanation:
Weight is the first attribute in path selection algorithm and is 0 for eBGP routes by default. If we set it to 0, router will continue from weight to the bottom, and when comparing neighbor router IDs it will find 192.168.0.1 less than 192.168.0.2 and the path will be selected as the best.

QUESTION 5
Refer to the exhibit. Which attribute can router 1 alter so that only other iBGP peers prefer to use 192.168.4.2 as the next hop for route 192.168.3.0/24?

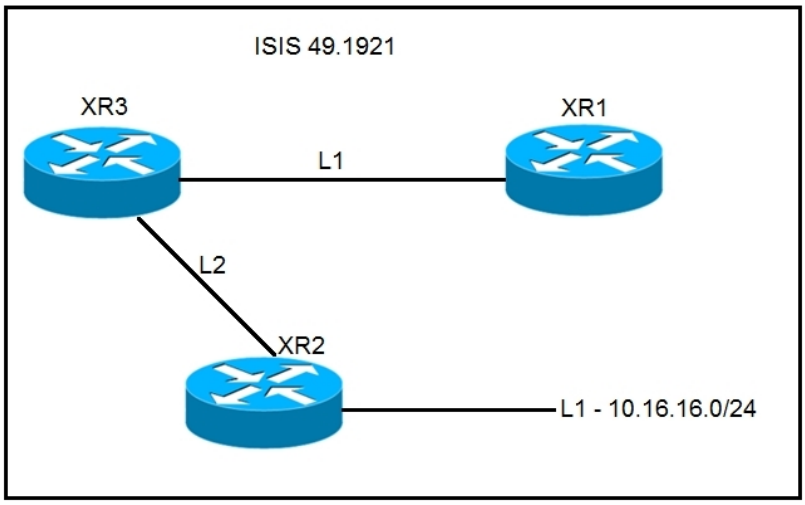
```
Router1# show ip bgp

BGP table version is 4, 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
Origin codes: i - IGP, e - EGP, ? - incomplete
     Network          Next Hop            Metric LocPrf Weight Path
*>   192.168.10.0/24  192.168.1.2              0             0 65525 i
*>   192.168.3.0/24   192.168.2.2              0             0 65535 i
*    192.168.3.0/24   192.168.4.2              0             0 65545 i
*>   192.168.20.0/24  0.0.0.0                  0         32768 i
```

A. MED
B. local preference
C. origin
D. weight

Answer: B
Explanation:
Weight is local to the router while LP allows routers in an AS with multiple exit points to choose which exit point is used to reach a particular NLRI.

QUESTION 6
Refer to the exhibit. A network operator must inject a Level 1 route from XR2 (10.16.16.0/24) into the ISIS topology.
Which configuration allows the injection in a way that XR3 and XR1 have a valid and working route for 10.16.16.0/24?



A.
```
#XR3
route-policy ISIS_PROPO
 if destination in(10.0.0.0/8 ge 8 le 22) then
  pass
 endif
end-policy
!
router isis 1
 net 49.1921.6800.0003.00
 address-family ipv4 unicast
!
propagate level 1 into level 2 route-policy ISIS_PROPO
```

B.
```
#XR2
route-policy ISIS_PROPO
 if destination in(10.0.0.0/8 ge 8 le 32) then
  pass
 endif
end-policy
!
router isis 1
 net 49.1921.6800.0003.00
 address-family ipv4 unicast
!
propagate level 2 into level 1 route-policy ISIS_PROPO
```

C.
```
#XR2
route-policy ISIS_PROPO
 if destination in(10.0.0.0/8 ge 8 le 32) then
  pass
 endif
end-policy
!
router isis 1
 net 49.1921.6800.0003.00
 address-family ipv4 unicast
!
propagate level 1 into level 2 route-policy ISIS_PROPO
```

D.
```
#XR3
route-policy ISIS_PROPO
 if destination in(10.0.0.0/8 ge 8 le 32) then
  pass
 endif
end-policy
!
router isis 1
 net 49.1921.6800.0003.00
 address-family ipv4 unicast
!
propagate level 2 into level 1 route-policy ISIS_PROPO
```

Answer: D
Explanation:
L1 route injected by XR2 won't be advertised to XR1, since L2 routes are NOT leaked to L1 by default. An [L2-L1] route leak policy should be configured on L1/L2 router (XR3).

QUESTION 7
Which two BGP mechanisms are used to prevent routing loops when using a design with redundant route reflectors? (Choose two.)

A. Cluster-list
B. AS-Path
C. Originator ID
D. Community
E. Origin

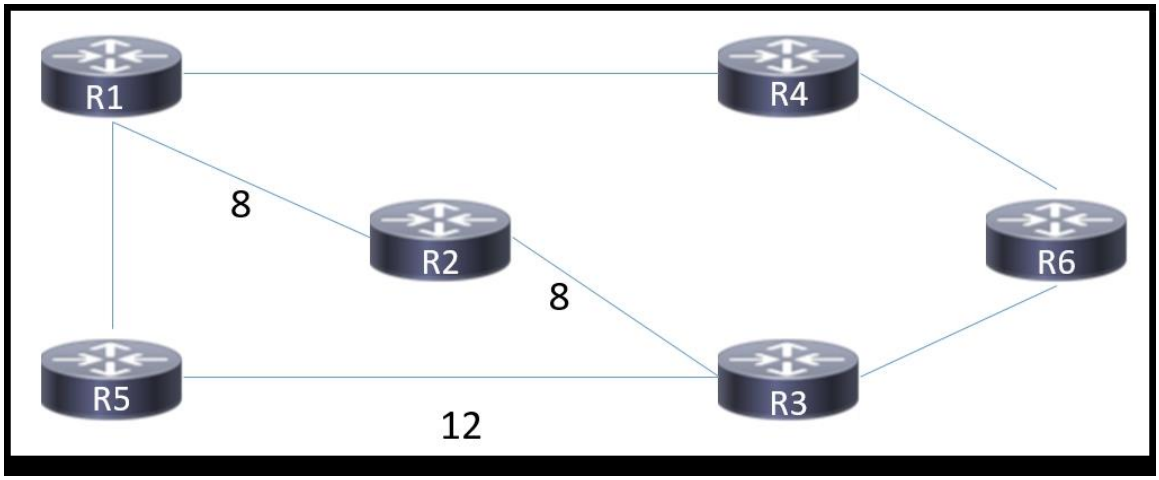
Answer: AC
Explanation:
As the iBGP learned routes are reflected, routing information may loop. The route reflector model has the following mechanisms to avoid routing loops:
Originator ID is an optional, nontransitive BGP attribute. It is a 4-byte attributed created by a route reflector.
The attribute carries the router ID of the originator of the route in the local autonomous system. Therefore, if a misconfiguration causes routing information to come back to the originator, the information is ignored.
Cluster-list is an optional, nontransitive BGP attribute. It is a sequence of cluster IDs that the route has passed. When a route reflector reflects a route from its clients to nonclient peers, and vice versa, it appends the local cluster ID to the cluster-list. If the cluster-list is empty, a new cluster-list is created. Using this attribute, a route reflector can identify if routing information is looped back to the same cluster due to misconfiguration. If the local cluster ID is found in the cluster-list, the advertisement is ignored.

QUESTION 8
A network engineer is troubleshooting OSPF multiarea.
Which Cisco IOS XR feature should the engineer use in order to streamline OSPF issue?

A. hierarchical CLI
B. routing process enabled by default on all interfaces
C. DR support for topology management
D. show lp ospf topology command

Answer: A
Explanation:
OSPF Hierarchical CLI and CLI Inheritance
Hierarchical CLI is the grouping of related network component information at defined hierarchical levels such as at the router, area, and interface levels. Hierarchical CLI allows for easier configuration, maintenance, and troubleshooting of OSPF configurations. When configuration commands are displayed together in their hierarchical context, visual inspections are simplified. Hierarchical CLI is intrinsic for CLI inheritance to be supported.
With CLI inheritance support, you need not explicitly configure a parameter for an area or interface. In the software, the parameters of interfaces in the same area can be exclusively configured with a single command, or parameter values can be inherited from a higher hierarchical level - such as from the area configuration level or the router ospf configuration levels.
https://www.cisco.com/c/en/us/td/docs/iosxr/ncs5500/routing/71x/b-routing-cg-ncs5500-71x/b-routing-cg-ncs5500-71x_chapter_011.html#con_1059437

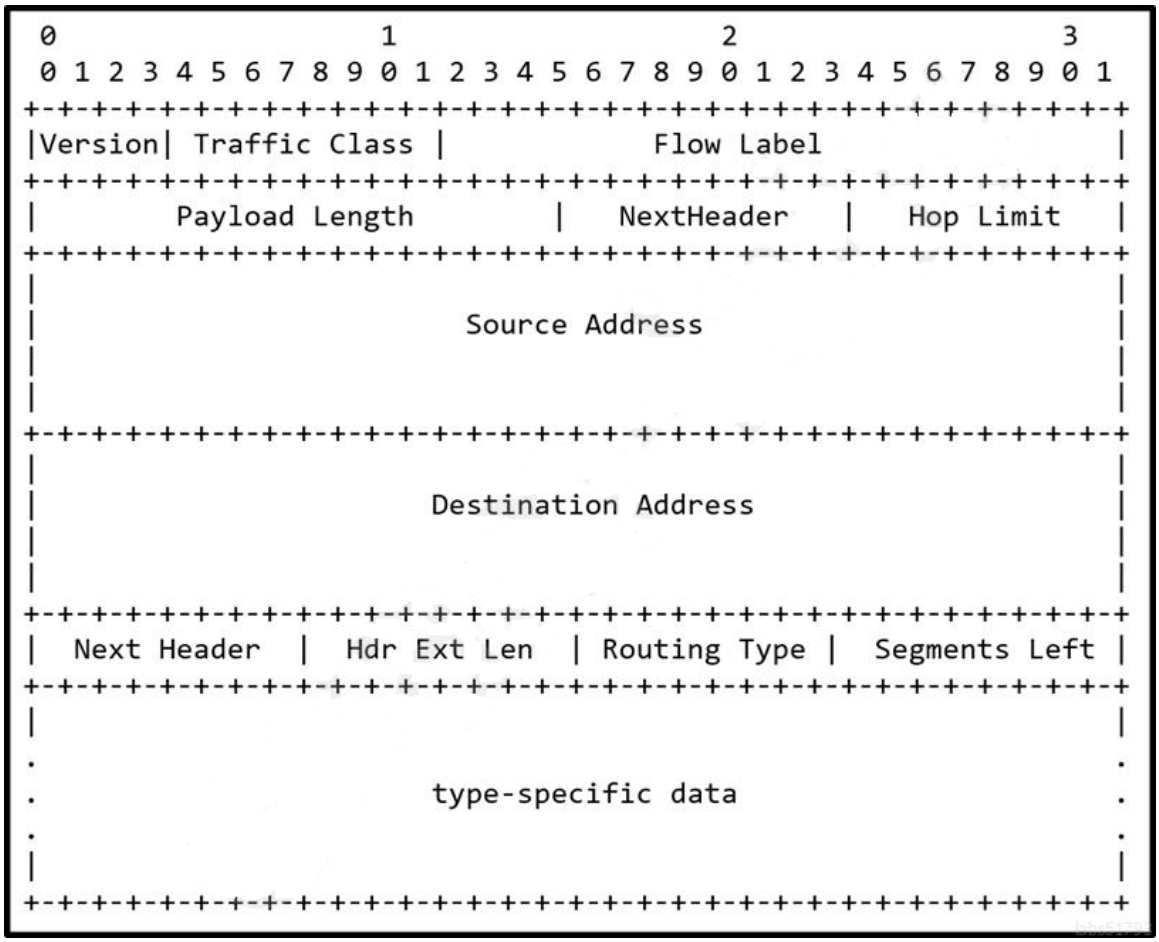
QUESTION 9
Refer to the exhibit. A network engineer configured routers R1 and R5 to run in IS-IS Level 1 mode and router R6 to run in IS-IS Level 2 mode. All other routers are running as Level 1 / Level 2 routers. An engineer expects traffic from R1 to R6 to pass via R2, but IS-IS routing has calculated the best path via R4. Which action corrects the problem?



A. Configure all routers as Level 1 routers.
B. Remove the link metric for the link from router R1 to router R2.
C. Change the link metric for the link from router R1 to router R2 to 1.
D. Configure all routers as Level 1 / Level 2 routers.

Answer: C
Explanation:
The default link metric for IS-IS is 10, so changing the link from R1 to R2 to 1 will change the overall metric to R6 to 9 (8+1).

QUESTION 10
Refer to the exhibit. The extension header of the IPv6 header is ignored when which value is equal to zero?



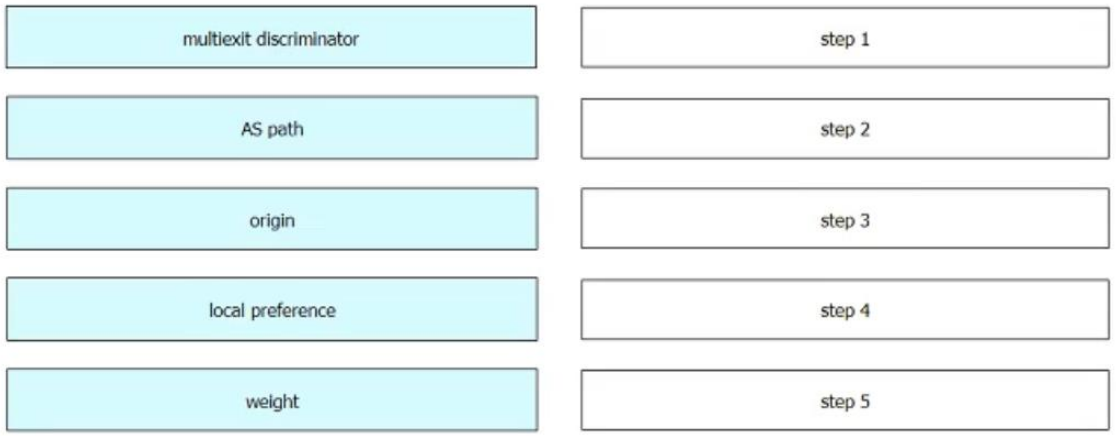
A. Segments Left
B. Hdr Ext Len
C. Routing Type
D. Next Header

Answer: A
Explanation:
If Segments Left is zero, the node must ignore the Routing header and proceed to process the next header in the packet, whose type is identified by the Next Header field in the Routing header.

QUESTION 11
QUESTION 187
Drag and Drop Question

Drag and drop the BGP attributes from the left into the order of route selection preference on the right.

Answer Area



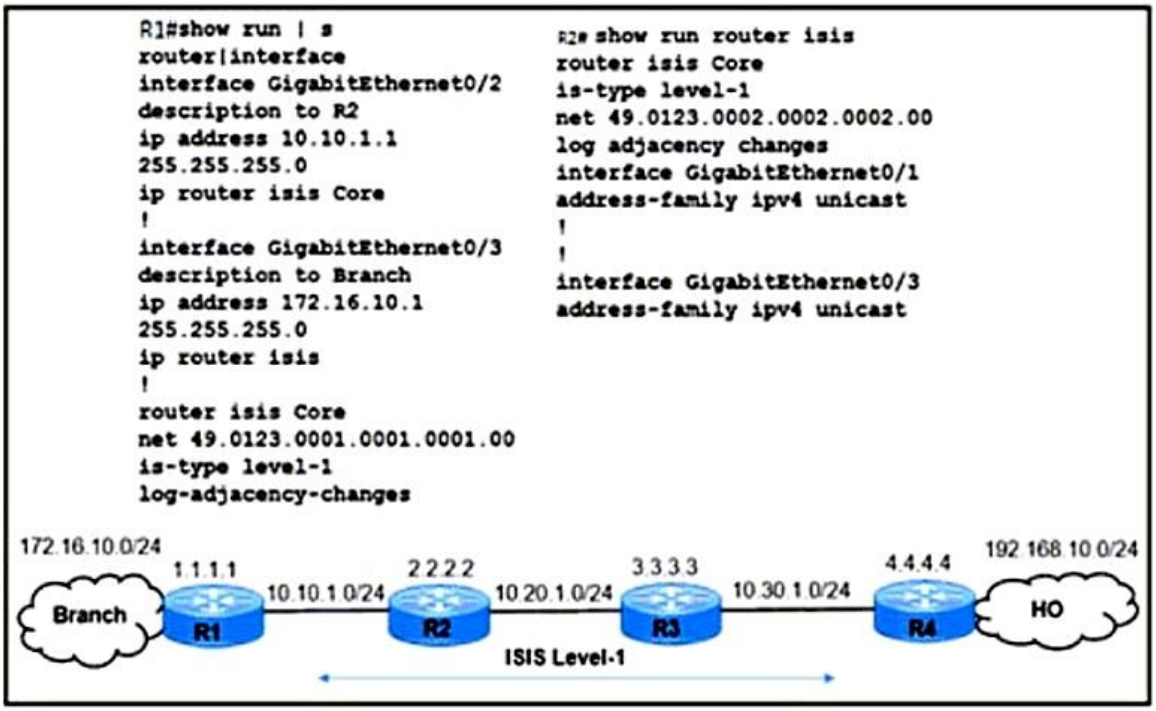
Answer:

Answer Area

QUESTION 12
Refer to the exhibit. Users at the branch office on R1 reported issues with an application at the home office on R4. While troubleshooting the issue, a network engineer determined that:

- The branch-office users can connect to the home office.
- The IS-IS adjacencies between R1 and R2 and R1 and the branch office are up.
- Traffic from R1 to the R2 10.20.1 .0/24 network is moving normally.
- The application at the home office is experiencing packet drops on the connection to the branch, and R3 cannot reach the R1 172.16.10.0/24 network.

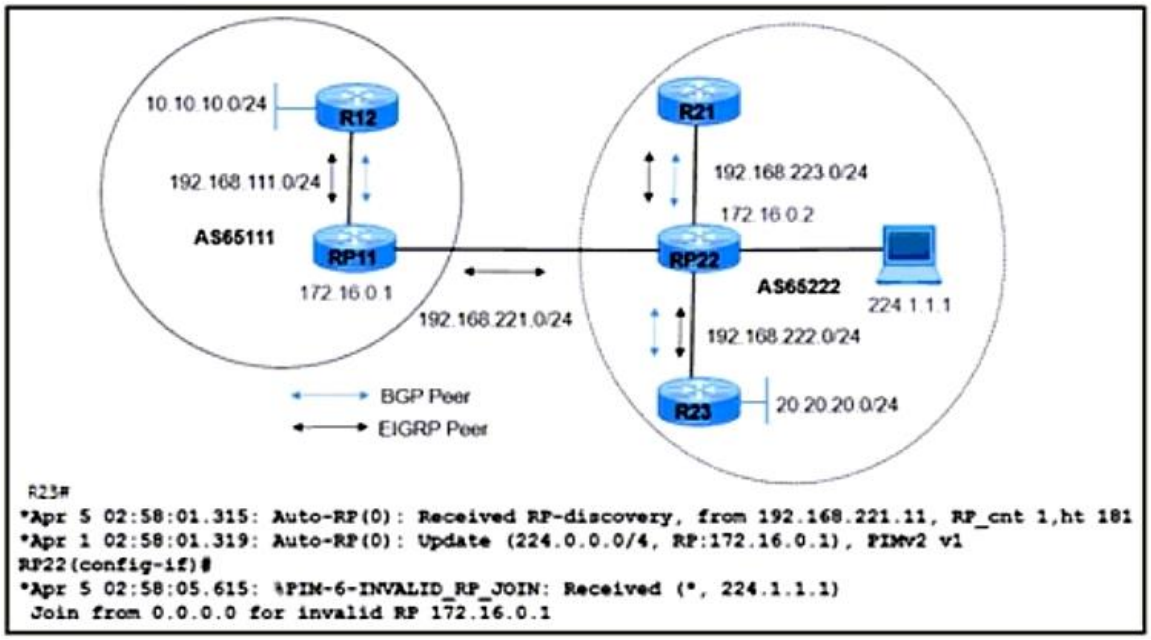
Which action resolves the issues?



A. Redistribute static connected routes in IS-IS on router RI.
B. Configure the IS-IS core instance on the R1 GigabitEthernet0/3 interface.
C. Redistribute static connected routes in IS-IS on router R4.
D. Configure the IS-IS core instance on the R2 GigabitEthernet0/1 interface.

Answer: B

QUESTION 13
Refer to the exhibit. R21 is a multicast source sending multicast traffic 224.1.1.1 to R23, with RP22 serving as the rendezvous point inside AS65222. A network engineer noticed that when R21 goes down, R12 in AS65111 starts to send the same multicast group 224.1.1.1 through RP11. Which action resolves the issue?



A. Block service groups 224.0.1.39 and 224.0.1.40 between the two autonomous systems.
B. Disable PIM parse mode between RP11 and RP22 in the two autonomous systems.
C. Advertise RP2 with a high local preference in AS65222.
D. Enable passive interface under EIGRP between the two autonomous systems.

Answer: A

QUESTION 14
Refer to the exhibit. Company A established BGP sessions with several ISPs. A network engineer at the company must filter out all traffic except for routes that transit AS 152. The engineer configured the filtering policy "permit _152$_(_[0-9])" on R1, but after applying the configuration, the engineer notices that other routes are still visible. Which action resolves the issue?

```
R1>show ip bgp
BGP table version is 1986541, local router ID is 172.16.212.76
Status codes: s suppressed, d damped, h history, * valid, > best, i - internal
Origin codes: i - IGP, e - EGP, ? - incomplete

   Network          Next Hop            Metric LocPrf Weight Path
*> 11.21.10.0/24    172.16.211.4             0             0 3421 12131 152 i
*> 11.22.14.0/24    172.11.12.54             0             0 3421 15243 3242 35673 35673 i
*> 11.23.15.0/24    192.16.22.19             0             0 3421 15243 3242 35673 152 i
*> 11.24.16.0/24    17.1.212.79              0             0 3421 1345 4166 15298 35673 32451 i
*> 11.25.17.0/24    15.65.21.9             120           0 3421 1345 152 15298 35673 32451 i
*> 11.26.20.0/23    11.16.212.7            215           0 3421 2211 2214 2854 i
```

A. Add a second filtering policy in the format ip access-list 1 permit ^152_([0-9]+).
B. Add a second filtering policy in the format ip prefix-list 1 permit ^152^.
C. Change the filtering policy to ip explicit-path 1 permit $152^.
D. Change the filtering policy to ip as-path access-list 1 permit _152_.

Answer: D

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