Nokia Data Center Fabric Fundamentals (exam number: 4A0-D01)

The following questions will test your knowledge and prepare you for the Nokia Data Center Fabric Fundamentals written exam. Compare your responses with the Answer Key at the end of the document.

1. A static route is configured in two steps in Nokia's SR Linux. Which of the following items CANNOT be configured in the static-routes container?
    A. A blackhole option.
    B. An IPv4 destination prefix.
    C. A preference value.
    D. A next-hop-group.

2. Which of the following statements about the leaf-spine topology (Clos network) is FALSE?
    A. Every leaf router is connected to all spine routers.
    B. Scaling can be achieved by adding an additional spine layer.
    C. Layer 2 is typically used at the aggregation and access layers.
    D. The leaf-spine topology uses ECMP to distribute traffic across duplicate links.

3. Which of the following is one of the recommendations for AS number assignment in a leaf-spine network?
    A. Assign the same AS number to all spine routers in a cluster.
    B. Assign public AS numbers to all leaf and spine routers.
    C. Assign a distinct AS number to all super spine routers.
    D. Assign the same AS number to all leaf routers.

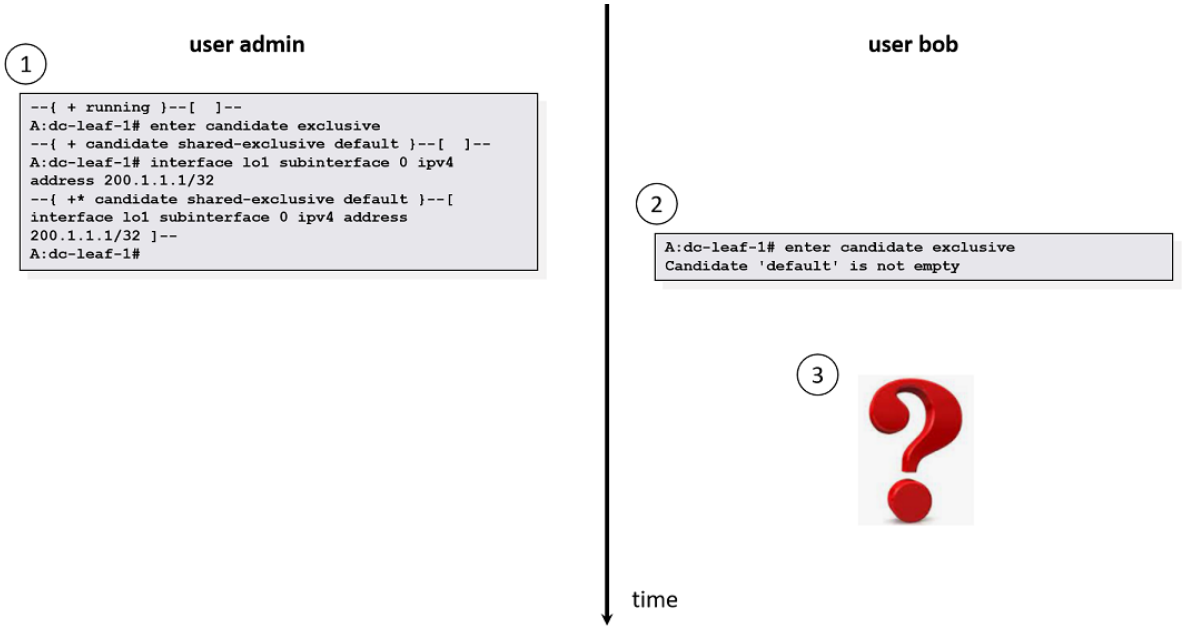
4. Which of the following is NOT a characteristic of Nokia's SR Linux?
    A. YANG model defines the configuration and state information for each application.
    B. Each individual Linux application uses a distinct IP-VRF.
    C. Applications can be accessed through JSON RPCs.
    D. Third-party defined applications can access the SR Linux applications.

5. What is the function of the impart database (IDB) in Nokia's SR Linux?
   A. It uses plug-ins to enable the customization of CLI.
   B. It defines the configuration and state information for each application.
   C. It handles messaging and exchange of information between applications.
   D. It supports intent-based automation of all aspects of data center operations.

6. Which of the following statements about CLI plugins in Nokia's SR Linux is TRUE?
   A. They allow customization of the CLI.
   B. They enable CLI to be converted into other formats such as JSON or XML.
   C. They enable configuration by third-party applications through the external gNMI/gRPC API.
   D. They translate application configuration information into protobufs for the IDB.

7. Which of the following statements about the CLI modes in Nokia's SR Linux is FALSE?
   A. The show mode uses pre-defined reports to display operational information.
   B. The running mode is used to display only the current configuration.
   C. The state mode is used to allow configuration modification.
   D. Users can switch from one mode to another using the enter command.

8. Consider the exhibit. Based on the output, what happens when user bob enters the candidate mode?



   A. User bob is blocked from entering the configuration mode because another user is already in exclusive mode.
   B. User bob is blocked from entering the configuration mode because he does not have proper administrative rights.
   C. User bob can commit his changes but not the changes from the user admin.
   D. User bob can commit the changes, but user admin must update his candidate datastore with the baseline command.

9. Consider the exhibit. Based on the output, what should the user admin do when "!" appears in the prompt?

user admin

```
A:dc-leaf-1# enter candidate private
--{ + candidate private private-admin }--[  ]--
A:dc-leaf-1# interface lo1 subinterface 0 ipv4 address 200.1.1.1/32
--{ +* candidate private private-admin }--[ interface lo1 subinterface 0 ipv4 address
200.1.1.1/32 ]--
A:dc-leaf-1#
--{ +! candidate private private-admin }--[  ]--
A:dc-leaf-1#
```

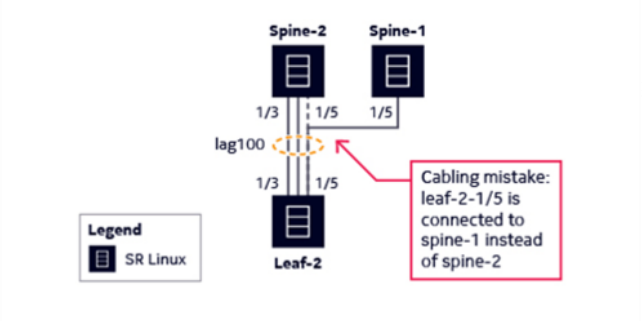
   A. Verify if the interface "lo1" has been configured.
   B. Verify if another interface already has the IP address "200.1.1.1/32" configured.
   C. Verify the differences between the candidate datastore and the baseline datastore.
   D. Verify the differences between the current running datastore and the baseline datastore.

10. Which of the following statements about configuration checkpoints in Nokia's SR Linux is TRUE?
   A. Users can revert to any previously saved checkpoint.
   B. Users can use the saved checkpoint files to resolve conflicts in a private candidate configuration.
   C. Users can merge configurations from two different checkpoints.
   D. Users are blocked from saving checkpoints unless they are in exclusive candidate mode.

11. Which of the following statements about Nokia SR Linux's subinterfaces configuration is FALSE?
   A. The subinterface type can be configured as "bridged".
   B. An IP address can be configured as a "primary" IP address.
   C. The Hello timer can be configured for discovery of a remote peer's interface.
   D. VLAN tagging must be enabled when an interface has multiple subinterfaces.

12. Which of the following statements about LLDP on Nokia's SR Linux is FALSE?
   A. LLDP can be enabled at both the system and interface level.
   B. LLDP is used to detect link failures rapidly and improve the overall convergence time.
   C. LLDP frames include SR Linux information such as interface name and system capabilities.
   D. LLDP frames are periodically sent on each interface.

13. Consider the exhibit. In LAG 100, why is the ethernet-1/5 shown as down?




```
A:dc-leaf-2# show lag lag100
=============================================
lag100 is up, Aggregate speed 0 Mbps, min links 1
+----------------+------------+------------------+
|   Member Name  | oper-state | oper-down-reason |
+================+============+==================+
| ethernet-1/3   | up         |                  |
| ethernet-1/4   | up         |                  |
| ethernet-1/5   | down       | other            |
+----------------+------------+------------------+
```

A. BFD is not configured on ethernet-1/5 and BFD packet is not sent or received on that interface.
B. BFD is configured and it dynamically blocks a member link that is connected to a different node.
C. LACP is not configured on ethernet-1/5 and LACP frame is not sent or received on that interface.
D. LACP is configured and it dynamically blocks a member link that is connected to a different node.

14. Which of the following statements about IP-VRFs in Nokia's SR Linux is FALSE?
A. Subinterfaces can be associated with an IP-VRF.
B. Multiple IP-VRFs can be connected using IRB interfaces.
C. Packets in an IP-VRF are forwarded based on the destination IP addresses.
D. Management network instance is a type of IP-VRF.

15. Which of the following statements about MAC-VRFs in Nokia's SR Linux is FALSE?
A. Subinterfaces can be associated with a MAC-VRF.
B. Frames in a MAC-VRF are forwarded based on the bridge table.
C. A MAC-VRF can only have one IRB interface.
D. Management network instance is a type of MAC-VRF.

16. Which of the following statements about the IRB interface is FALSE?
A. An IRB interface interconnects an IP-VRF and a MAC-VRF.
B. IRB interfaces are L3 interfaces.
C. VLAN tagging can be enabled on an IRB interface.
D. MTU can be configured on an IRB interface.

17. Consider the exhibit. Which of the following statements about the MAC table shown in the output is FALSE?

```
A:dc-leaf-1# show network-instance mac-vrf-1 bridge-table mac-duplication duplicate-entries
-------------------------------------------------------------------------------------------------
Admin state            : enable
Monitoring window      : 3
Number of moves allowed: 4
Hold down time         : 9
Action                 : blackhole
-------------------------------------------------------------------------------------------------
+-------------------+-----------------+------------+--------------------------+--------------------+
|   Duplicate MAC   |   Destination   | Dest Index |          Detect Time     | Hold Time Remaining |
+===================+=================+============+==========================+====================+
| 00:25:BA:00:00:10 | blackhole       | 0          | 2021-12-10T21:06:36.000Z | 540                |
+-------------------+-----------------+------------+--------------------------+--------------------+
Total Duplicate Macs      :    1 Total    0 Active
-------------------------------------------------------------------------------------------------
```

A. The interface on which the duplicate MAC address is detected is brought operationally down.
B. The MAC address 00:25:BA:00:00:10 is learnt from more than one interfaces.
C. Frames arriving with destination MAC of 00:25:BA:00:00:10 are dropped.
D. Frames arriving with source MAC of 00:25:BA:00:00:10 are dropped.

18. Which of the following statements about the next-hop-group is FALSE?

A. The next-hop-group can be associated with more than one static route.
B. The next-hop-group can contain more than one next-hops.
C. The next-hop in the next-hop-group can be associated with a routing policy.
D. The next-hop in the next-hop-group can be resolved using a non-local route.

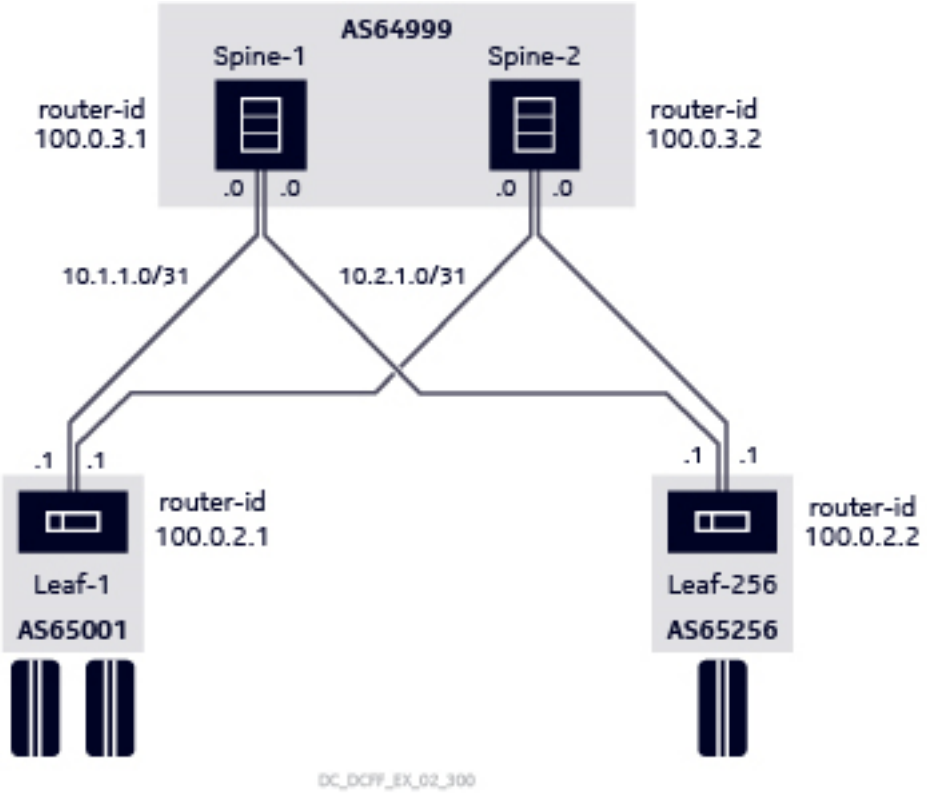
19. Consider the exhibit. Which of the following statements about the route entry in this output is FALSE?

```
--{ running }--[ network-instance default ]--
A:dc-leaf-1# show route-table ipv4-unicast summary
-------------------------------------------------------------------------------------------------
IPv4 Unicast route table of network instance default
------------------+----+-------+------------+------+----------+------+----+-----------+----------+
|     Prefix      | ID | Route |Route Owner |Active| Origin   |Metric|Pref|  Next-hop | Next-hop |
|                 |    | Type  |            |      | Network  |      |    |   (Type)  | Interface|
|                 |    |       |            |      | Instance |      |    |           |          |
+=================+====+=======+============+======+==========+======+====+===========+==========+
. . .
| 192.168.20.0/30 | 0  | static|static_route| True | default  | 1    | 5  | 10.1.1.0/ | ethernet-|
|                 |    |       |-mgr        |      |          |      |    | 31 (indir | 1/1.0    |
|                 |    |       |            |      |          |      |    | ect/local | ethernet-|
|                 |    |       |            |      |          |      |    | )         | 1/2.0    |
|                 |    |       |            |      |          |      |    | 10.2.1.0/ |          |
|                 |    |       |            |      |          |      |    | 31 (indir |          |
|                 |    |       |            |      |          |      |    | ect/local |          |
|                 |    |       |            |      |          |      |    | )         |          |
+-----------------+----+-------+------------+------+----------+------+----+-----------+----------+
```

A. A static route with destination prefix of 192.168.20.0/30 is configured.
B. The next-hop-group for this route is configured with two next-hops.
C. The next-hop of 10.1.1.0 is not a local route.
D. The next-hop for this route is selected using a round-robin algorithm.

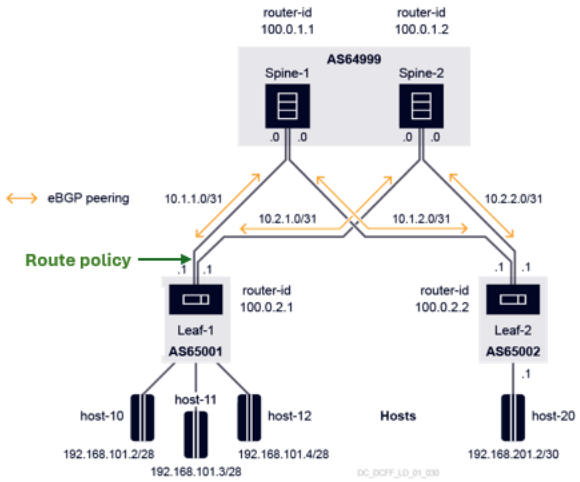
20. Which of the following is NOT a recommended BGP configuration for the leaf-spine topology?
    A. Enable ECMP and BGP multipath.
    B. Configure export and import route policies.
    C. Use private autonomous system number range.
    D. Configure the same autonomous system number on all leafs.

21. Consider the exhibit. Which of the following is NOT a mandatory BGP configuration for Leaf-1 used to establish a peering session with Spine-1?



    A. Configure an autonomous system of 65001.
    B. Configure a router-id of 100.0.2.1.
    C. Configure BGP multipath to 2.
    D. Configure a BGP group and associate a neighbor of 10.1.1.0 to the BGP group.

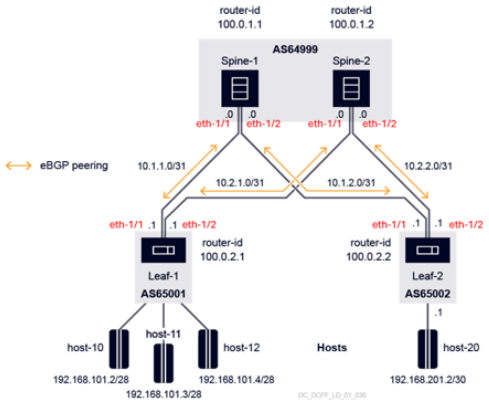
22. Consider the exhibit. What happens when this policy is applied as an export policy on Leaf-1?




```
policy policy-1 {
        default-action {
            policy-result accept
        }
        statement 10 {
            match {
                bgp {
                    as-path-length {
                        value 1
                        operator ge
                    }
                }
            }
            action {
                policy-result reject
            }
        }
    }
```

A. Leaf-1 does not export any routes that originated from Leaf-2.
B. Leaf-1 does not append its own AS number when exporting routes to an eBGP peer.
C. Leaf-1 only exports routes if the remote peer has an AS number greater than 1.
D. Leaf-1 only exports routes if the remote peer has a '1' in its AS number.

23. Consider the exhibit. Leaf-1 receives a prefix from two different BGP peers. Which of the following statements about the prefix in Leaf-1 is TRUE?




```
A:dc-leaf-1# show protocols bgp neighbor 10.1.1.0 received-routes ipv4
-------------------------------------------------------------------------------
Peer        : 10.1.1.0, remote AS: 64999, local AS: 65001
-------------------------------------------------------------------------------
. . . Output omitted . . .
+-------------------------------------------------------------------------------+
| Status Network        Path-id   Next Hop    MED  LocPref   AsPath       Origin|
+===============================================================================+
. . . output omitted . . .
|  u*>  192.168.201.0/30   0     10.1.1.0     -      150   [64999, 65002]   i   |
+-------------------------------------------------------------------------------+
```

```
A:dc-leaf-1# show protocols bgp neighbor 10.2.1.0 received-routes ipv4
-------------------------------------------------------------------------------
Peer        : 10.2.1.0, remote AS: 64999, local AS: 65001
-------------------------------------------------------------------------------
. . . Output omitted . . .
+-------------------------------------------------------------------------------+
| Status Network        Path-id   Next Hop    MED  LocPref   AsPath       Origin|
+===============================================================================+
. . . output omitted . . .
|  *    192.168.201.0/30  0      10.2.1.0     -           [64999, 65002]   i   |
+-------------------------------------------------------------------------------+
```

A. Only the prefix 192.168.201.0/30 with next-hop 10.2.1.0 is shown in the RIB-Out.
B. The prefix 192.168.201.0/30 with both next-hop 10.1.1.0 and 10.2.1.0 is shown as the best BGP route in the Loc-RIB.
C. Only the prefix 192.168.201.0/30 with next-hop 10.2.1.0 is shown as the best BGP route in the Loc-RIB.
D. Only the prefix 192.168.201.0/30 with next-hop 10.1.1.0 is shown as the best BGP route in the Loc-RIB.

24. Which of the following statements about using BFD with BGP in Nokia SR Linux is FALSE?
    A. BGP fast-failover is a good option to use with BFD.
    B. An export policy must be configured to advertise BFD control packets to BGP.
    C. BFD must be enabled on a subinterface level and on BGP protocol level.
    D. Using BFD accelerates the BGP failure detection compared to the 'holdtime' timer value.

25. Which of the following statements about logging in Nokia's SR Linux is FALSE?
    A. Syslog messages can be saved locally as an encrypted file.
    B. Syslog messages can be transferred to a centralized syslog server.
    C. SR Linux logging is based on Linux rsyslog.
    D. Syslog messages contain at least time, hostname, application name and logging message itself.

26. Which of the following is NOT a valid logging configuration in Nokia's SR Linux?
    A. Specify memory buffer as a logging destination.
    B. Specify a log file as logging destination.
    C. Specify console as a logging source.
    D. Specify syslog filter as a logging source.

27. Consider the exhibit. Based on the output from Nokia's SR Linux, which of the following statements is FALSE?

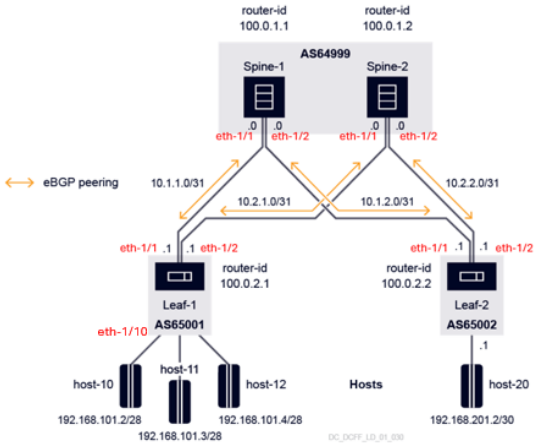
```
(A:dc-leaf-1# show system logging file log-file | grep ESTABLISHED
15:36:07.044 sr_bgp_mgr: In network-instance default, the BGP session with VR default (1): Group spines: Peer
10.1.1.1 moved from higher state ESTABLISHED to lower state IDLE due to event TCP SOCKET ERROR
15:39:27.910 sr_bgp_mgr: In network-instance default, the BGP session with VR default (1): Group spines: Peer
10.1.1.1 moved into the ESTABLISHED state
```

    A. A log is configured with a log file as a logging destination.
    B. Log messages are stored in RAM.
    C. Log messages are generated from "sr_bgp_mgr" SR Linux application.
    D. A file named "log-file" is created in a Linux directory.

28. Which of the following acl-filters provides control plane protection against Denial of Service attacks in Nokia's SR Linux?
    A. Input acl-filter.
    B. Output acl-filter.
    C. CPM acl-filter.
    D. Capture acl-filter.

29. Consider the exhibit. The ACL is used to block host-10 from accessing the data center fabric interface IP addresses such as 10.1.1.0 and 10.2.1.0. How should this ACL be applied on Leaf-1?

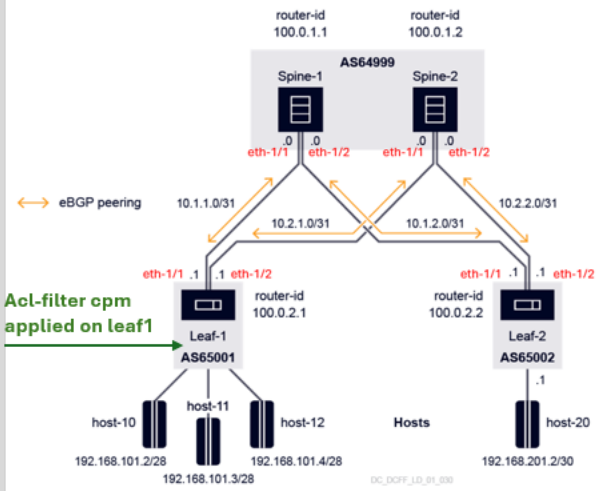
```
--{ + candidate shared default }--[ acl acl-filter leaf-spine type ipv4 ]--
A:leaf1# info
    entry 10 {
        match {
            ipv4 {
                destination-ip {
                    prefix 10.0.0.0/8
                }
            }
        }
        action {
            drop {
            }
        }
    }
```



A. It should be applied in the output direction on the subinterfaces eth-1/1.1 and eth-1/2.1.
B. It should be applied in the input direction on the subinterfaces eth-1/1.1 and eth-1/2.1.
C. It should be applied in the output direction on the subinterface eth-1/10.1.
D. It should be applied in the input direction on the subinterface eth-1/10.1.

30. Consider the exhibit. Which of the following statements about the CPM filter on Leaf-1 is TRUE?

```
--{ + running }--[ acl acl-filter cpm type ipv4 ]--
A:leaf1# info
    entry 10 {
        match {
            ipv4 {
                protocol tcp
                source-ip {
                    prefix 10.0.0.0/8
                }
            }
            transport {
                source-port {
                    value bgp
                }
            }
        }
        action {
            accept {
            }
        }
    }
    entry 9999 {
        action {
            log true
            drop {
            }
        }
    }
```



A. This filter allows Leaf-1 to establish an SSH session from the 10.0.0.0/8 addresses.
B. This filter allows other routers to ping Leaf-1 using a 10.0.0.0/8 as the source address.
C. This filter allows the establishment of BGP sessions if the peer address is in the 10.0.0.0/8 subnet.
D. This filter logs all data packets received on Leaf-1.

31. Which of the following statements about a CPM filter policer is FALSE?
    A. The system-cpu-policer aggregates traffic from all line cards.
    B. The policer is implemented on the CPM.
    C. For the system-cpu-policer, traffic is dropped if the policer bucket reaches max-packet-burst size.
    D. For the policer, the policer bucket is emptied at peak-rate.

32. Which of the following statements about the capture ACL is FALSE?
    A. It copies matching packets and sends them to the CPM for further processing.
    B. Once configured, it is applied to incoming traffic on all subinterfaces.
    C. It is a hardware-based filter and drops packets if the policer bucket reaches its maximum burst size.
    D. It works together with the traffic monitor tool to provide a tcpdump-like utility.

33. Which of the following statements about Nokia's SR Linux is FALSE?
    A. A CPM acl-filter can be used to block unauthorized users from accessing SR Linux.
    B. Accounting can be used to track commands issued by a user.
    C. Regular Linux users may have access to SR Linux files and processes.
    D. Remote users can be authenticated using TACACS+.

34. Which of the following statements about a PKI is FALSE?
    A. The PKI manages the certificates used in a public key system for message encryption and authentication.
    B. The subjects send a certificate signing request to the certificate authority.
    C. The certificate authority generates a public/private key pair.
    D. The certificate authority uses the private key to sign the certificate, guaranteeing its authenticity.

35. Which of the following statements about Zero Touch Provisioning (ZTP) is FALSE?
    A. ZTP uses a PKI to ensure boot parameters are properly encrypted and authenticated.
    B. ZTP allows a router to become operational in the network without requiring any pre-provisioning.
    C. The ZTP application is initiated as part of the SR Linux autoboot process.
    D. The ZTP process gets its boot parameters through DHCP.

36. Which of the following is NOT part of the Zero Touch Provisioning (ZTP) autoboot process on Nokia's SR Linux?
    A. The Linux OS checks the autoboot flag in grub.cfg.
    B. The router sends a DHCP request to get its IP address.
    C. The router sends a certificate signing request to retrieve the provisioning script securely.
    D. All events that occur during the boot process are logged in the ZTP log file.

37. Which of the following statements about the Nokia Event Driven Automation (EDA) platform is TRUE?
    A. It supports plug-ins that allow customization of the CLI.
    B. It manages all SR Linux and customer-defined applications.
    C. It is designed for intent-based automation of all aspects of data center operations.
    D. It is based on the Docker Swarm container management platform.

38. Which of the following statements about the digital sandbox in Nokia's Event Driven Automation (EDA) platform is TRUE?
    A. It allows an operator to configure all components in the data center individually through a graphical interface.
    B. It provides a fast and cost-effective way to emulate and validate the real data center fabric.
    C. It allows the detection of faulty hardware in the data center devices.
    D. It uses ZTP to automatically download and execute a provisioning script for the data center fabric.

39. Which of the following statements about intent-based fabric configuration in Nokia's Event Driven Automation (EDA) platform is FALSE?
    A. Once the fabric intent is defined, devices in the data center fabric can be automatically deployed and configured.
    B. The fabric intent identifies the abstract and minimal information needed to build the data center fabric.
    C. The fabric intent is represented as "code" in YAML format.
    D. The fabric intent collects telemetry and logging data for analysis.

40. Which of the following statements about EVPN BGP peering is FALSE?
    A. All participating routers use the same autonomous system number.
    B. AFI-SAFI family EVPN must be enabled.
    C. A separate group is created to isolate EVPN BGP sessions from the underlay BGP sessions.
    D. AFI-SAFI family EVPN does not support the use of route-reflectors.

Answer Key

1. A	11. C	21. C	31. B
2. C	12. B	22. A	32. C
3. A	13. D	23. D	33. A
4. B	14. B	24. B	34. C
5. C	15. D	25. A	35. A
6. A	16. C	26. C	36. C
7. C	17. A	27. B	37. C
8. A	18. C	28. C	38. B
9. D	19. D	29. D	39. D
10. A	20. D	30. C	40. D

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Nokia Oyj
Karaportti 3
FI-02610 Espoo, Finland
Tel. +358 (0) 10 44 88 000
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