Practice Exam Questions for: Nokia Cloud Packet Core (exam number: 4A0-M05)

The following questions will test your knowledge and prepare you for the Nokia Cloud Packet Core exam. Compare your responses with the Answer Key at the end of the document.

1. Which of the following is a benefit of utilizing a shared data repository?
   a. Transforming the network away from a static “one size fits all” paradigm
   b. Dividing the underlay into logical networks that operate independently
   c. Allowing the cloud-native packet core to maximize resource utilization
   d. Breaking down the cloud-native packet core functions into smaller components

2. Which of the following components is NOT implemented by the Nokia Cloud Packet Core for LTE?
   a. PCRF
   b. HSS
   c. MME
   d. PAE-GW

3. According to the NFV MANO architecture, which of the following is a function of the VNF manager?
   a. Managing the NFVI compute, storage, and network resources
   b. Maintaining a mapping for the allocation of virtual resources to physical resources
   c. Creating an end-to-end resource-coordinated service
   d. Maintaining the virtualized resources that support the VNF functionality

4. Which of the following components can perform fault, performance, and security management for CPC?
   a. CBND
   b. NetAct
   c. CBIS
   d. NSP
5. Which of the following is NOT a function of libvirt?
   a. Provides a management layer that talks to the various hypervisors
   b. Provides an open source application programming interface
   c. Provides the virtualized hardware to each virtual machine
   d. Provides a common and stable layer to manage the virtual machines

6. Which of the following OpenStack projects provides the VM image to Nova compute during a VM creation workflow?
   a. Glance
   b. Cinder
   c. Keystone
   d. Neutron

7. Which of the following statements about CPU pinning is FALSE?
   a. It is a scheduling technique that makes the CMS aware of NUMA topology.
   b. It ensures that all CPU cores of a VM are on the same NUMA node.
   c. It provides better performance by ensuring that all I/O of a VM are on the same NUMA node.
   d. It ensures that the VM is assigned to high performance compute resources.

8. Which of the following statements about an OpenStack provider network with Open vSwitch (OVS) is FALSE?
   a. Internally, OVS uses VLAN tags to distinguish between the different virtual networks.
   b. The OVS supports VLAN, GRE, and VXLAN tunnels.
   c. The OpenStack provider networks provide direct access to the physical network.
   d. The VMs connect directly to the OVS integration bridge.

9. Which of the following is NOT a characteristic of utilizing huge pages on the compute resource?
   a. Increases the speed of a page table walk
   b. Allows the use of much larger memory pages
   c. Improves performance of applications that use large memory space
   d. Takes the system longer to load pages when a page swap occurs

10. Which of the following statements about L2 interface redundancy with SR-IOV is FALSE?
    a. The interfaces are configured with different subnets.
    b. ARP may be used as a heartbeat to verify connectivity to the next-hop router.
    c. The interfaces are configured with the same VLAN ID.
    d. Each vNIC is connected to a separate virtual function on a different physnet.

11. Which VM redundancy model supports multiple active/standby pairs?
    a. 1+1
    b. 2N
    c. N+
    d. N:K
12. Which of the following statements about CBAM is FALSE?
   a. It performs the role of a virtual network function manager.
   b. It works with CBIS, OpenStack, or VMware.
   c. It manages the lifecycle of the VNFs.
   d. It provides an interface into the OSS/BSS functions.

13. Which of the following virtual machines performs internal load balancing on the CMM?
   a. CPPS
   b. NECC
   c. IPDS
   d. DBS

14. Which of the following is NOT a function of the CMM Packet Processing Service (PAPS)?
   a. Terminates the Gb interface
   b. Performs DSCP packet marking for 3G user plane
   c. Performs packet ciphering and deciphering for 2G user plane
   d. Performs lawful intercept for 2G user plane

15. Which of the following CMM virtual machines utilize the 2N redundancy model?
   a. IPPS
   b. NECC
   c. PAPS
   d. DBS

16. Which of the following actions is NOT performed when the CMM receives an attach request for a new 3G UE?
   a. The active IPDS handles the load balancing of new 3G UEs across available PAPSs.
   b. The PAPS handles the load balancing of PDP contexts across available IPPSs.
   c. The PAPS registers the new 3G UE on the active CPPS.
   d. The PAPS selects a DBS pair for the new 3G UE and sends UE data to the active DBS.

17. To which of the following VMs does the CMM OAM network connect?
   a. CPPS
   b. NECC
   c. IPPS
   d. PAPS

18. Which of the following statements regarding CMM external networks is TRUE?
   a. An external network terminates on IPDS to carry 3G user plane traffic.
   b. An external network terminates on PAPS to carry 3G signaling traffic.
   c. An external network terminates on IPPS to carry LTE signaling traffic.
   d. An external network terminates on PAPS to carry 2G user plane traffic.
19. Which of the following statements regarding the CMM Internal IP Management (IIPM) is TRUE?
   a. It monitors the connectivity between CMM and CMG.
   b. It monitors the next-hop router reachability.
   c. It utilizes BFD to confirm L3 connectivity to the next-hop router.
   d. It monitors the connectivity between all CMM VMs.

20. Which of the following statements regarding CMM deployment is TRUE?
   a. An anti-affinity rule is used to ensure NECC VMs are deployed in different zones.
   b. All CMM networks, except OAM, are VirtIO.
   c. A server group is used for each DBS pair to ensure that active and standby DBS VMs are on different computes.
   d. Network resiliency is provided by the host OS for SR-IOV and by CMM for VirtIO.

21. Which of the following CMM VMs scale out/in using an active/standby pair?
   a. NECC
   b. CPPS
   c. IPPS
   d. DBS

22. Which of the following Nokia products manages the RAN and EPC?
   a. CloudBand Network Director (CBND)
   b. CloudBand Application Manager (CBAM)
   c. Network Services Platform (NSP)
   d. NetAct

23. Which of the following statements regarding CMM performance management (PM) is FALSE?
   a. The CMM VMs send their PM data to the Kafka pipe.
   b. A PM event consumer in the NECC receives the data and stores it in the database.
   c. NetAct is informed of the new PM data file through the NETCONF agent.
   d. A statistics API is used to query any counters from the NECC.

24. Which of the following logical interfaces is used between the CMG and the SGSN?
   a. S4
   b. S12
   c. S1U
   d. SGi

25. Which of the following statements about CMG deployment in the LB-less mode is FALSE?
   a. LB-VM handles only control plane traffic.
   b. Any ingress user plane traffic goes directly to the MG-VM.
   c. Any egress user plane traffic goes directly from the MG-VM to the gateway.
   d. Each MG-VM advertises its own loopback address for user plane traffic.
26. Which of the following is a function of the active MG-VM in a CMG?
   a. Performs routing protocol processing in LB-less mode
   b. Terminates the external user plane interfaces in LB mode
   c. Terminates the external signaling interfaces in LB-less mode
   d. Performs deep packet inspection for application assurance

27. Which of the following statements about CMG intra-VNF redundancy is FALSE?
   a. The OAM-VMs operate in a 1+1 redundancy model.
   b. The MG-VMs can operate in a N:K redundancy model.
   c. The LB-VMs operate in a 2N redundancy model.
   d. The CMG uses availability zones or anti-affinity rules to ensure separation of active/standby VMs.

28. Which of the following statements about IP networks used by CMG is FALSE?
   a. External networks are connected to LB-VMs.
   b. The data switch fabric is used to connect LB-VMs to OAM-VMs.
   c. In LB-less mode, the data switch fabric carries only signaling traffic.
   d. The control switch fabric must be VirtIO based.

29. Which of the following statements about the Control Switch Fabric (CSF) used in CMG is FALSE?
   a. Two CSFs can be used for redundancy and load balancing.
   b. The CSF is used to carry control messaging between the CMG VMs.
   c. LB-VMs use the CSF to send initial attach messages to OAM-VMs.
   d. New VMs added to the CMG use the CSF to advertise their existence.

30. Which of the following statements about using anti-affinity server groups in a CMG deployment is FALSE?
   a. Anti-affinity groups are required for CMG inter-VNF geo-redundancy.
   b. A total of 3 anti-affinity groups should be created.
   c. Anti-affinity groups ensure VMs belonging to a group are instantiated on different servers.
   d. Anti-affinity groups provide hardware resiliency in the event of a server failure.

31. Which of the following statements about CMG scaling is TRUE?
   a. Scaling can be triggered through CBAM or NSP.
   b. OAM-VMs scale in and out using active/standby pairs.
   c. LB-VMs scale in and out using active/standby pairs.
   d. MG-VMs scale in and out in steps of 1 VM.

32. Which of the following statements about the CMG deployment using CUPS is TRUE?
   a. Any scaling performed in the control plane VNF must be mirrored in the user plane VNF.
   b. The control plane and user plane VNFs must use the same redundancy model.
   c. In a software upgrade, the control plane and user plane VNFs must be upgraded at the same time.
   d. The Sxa interface is used between an SGW control plane VNF and an SGW user plane VNF.
33. Which of the following CMG monitoring and troubleshooting tools is used to provide counters for processing the system's behavior?
   a. PCMD
   b. Call Trace
   c. GTP Ping
   d. KPI/KCI

34. Which of the following statements about Smart Plan Suite (SPS) Policy is FALSE?
   a. It performs the online charging system (OCS) function for 4G networks.
   b. It performs the role of the PCF for 5G networks.
   c. It performs the role of the PCRF for 4G networks.
   d. It pushes the appropriate policies to the PCEF.

35. Which of the following Smart Plan Suite (SPS) VMs receive requests from BSS/OSS?
   a. Diameter IOH
   b. HTTP IOH
   c. Common Services
   d. Service Discovery and Configuration

36. Which of the following statements about 4G-5G RAN-level interworking is FALSE?
   a. It requires an interface to directly connect the two radio nodes.
   b. It supports a master node that serves as anchor point for all control plane signaling.
   c. It requires a 4G evolved packet core.
   d. It is used in NSA deployment options.

37. Which of the following statements about 5G deployment using option 3A is TRUE?
   a. The core network is a 5G core.
   b. The X2 interface between the eNB and the gNB supports data plane traffic.
   c. The gNB has a data plane interface to the core.
   d. The gNB is the master node.
38. Using the displayed exhibit, which of the following can be concluded?
   a. Only the IPDS VMs have external interfaces.
   b. The management subnet for the NECC is 169.254.64.0/24.
   c. The 2 CPPS VMs are separated using different availability zones.
   d. All the VMs for the CMM are using the same image file.

39. Which of the following statements regarding the CMM system overall health check is TRUE?
   a. It can be executed manually using the CLI command “fns_monitor”.
   b. It is automatically performed by the CMM periodically.
   c. It can be executed on each individual CMM VM.
   d. It does not require root privileges to execute the command.
40. Based upon the exhibit, which of the following statements is TRUE?
   a. All the vm-functions are operationally “up”.
   b. VM Id 1 is an MG-VM.
   c. Both VM Ids 1 and 3 have an isa-ms-v provisioned as sub-id 2.
   d. The CMG has one LB-VM.

```
*A:CMG2-Pod1# show vm-function

VM Function Summary

<table>
<thead>
<tr>
<th>VM Id</th>
<th>Id</th>
<th>Provisioned Type</th>
<th>Equipped Type (if different)</th>
<th>Admin State</th>
<th>Operational State</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>m20-v</td>
<td></td>
<td>up</td>
<td>up</td>
</tr>
<tr>
<td>2</td>
<td>isa-ip-reas-v</td>
<td>isa-ms-v</td>
<td></td>
<td>up</td>
<td>up</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
<td>isa-mg-v</td>
<td></td>
<td>up</td>
<td>up</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>(not provisioned)</td>
<td>isa-ms-v</td>
<td>up</td>
<td>un provisioned</td>
</tr>
</tbody>
</table>

```
Answer Key

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