Practice Exam Questions for: Nokia Mobility Manager (exam number: 4A0-M03)

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

1. Which of the following statements regarding the role of the MME in the packet core is FALSE?
   a. MME allows a law enforcement agency to receive signaling information.
   b. MME allocates one IP address per PDN for the UE during initial attachment.
   c. MME manages UE registration so that the UE can receive packet services from the mobile network.
   d. MME authenticates and authorizes the UE to the network during initial attachment and subsequent attachment.

2. Which of the following is a GTP-C interface on the MME?
   a. S5
   b. S11
   c. S1-U
   d. S1-MME

3. Which of the following is a Diameter interface on the MME?
   a. Gx
   b. S1-MME
   c. S6a
   d. S11

4. Which of the following statements regarding the S1 Application Protocol (S1-AP) is TRUE?
   a. S1-AP carries data in the form of an Attribute Value Pair (AVP).
   b. S1-AP is used for paging and handover functions.
   c. S1-AP runs between UE and MME transparently through eNodeB.
   d. S1-AP runs on top of TCP.
5. Which logical interface is used to carry subscriber and authentication information between the MME and the HSS?
   a. S1-MME
   b. S6a
   c. S11
   d. S13

6. Which of the following is allocated by the SGSN to support subscriber identity confidentiality in a 2G/3G network?
   a. GUTI
   b. M-TMSI
   c. S-TMSI
   d. P-TMSI

7. Which of the following statements regarding a tracking area and a tracking area list (TA list) is FALSE?
   a. The location of an idle UE is known by the network at a TA list granularity.
   b. The location of an active UE is known by the network at an eNodeB granularity.
   c. An eNodeB allocates a TA list to a UE when it registers with the network.
   d. All the tracking areas in a TA list are served by the same MME.

8. Which of the following statements regarding MME pools and MME pool areas is TRUE?
   a. The location of an active UE is known by the network at an MME pool granularity.
   b. The location of an idle UE is known by the network at an MME pool area granularity.
   c. A tracking area can belong to one or more MME pool areas.
   d. An MME can belong to multiple MME pools.

9. Which of the following is a benefit of the S1-Flex mechanism?
   a. It rapidly restores UE sessions in case of MME failure.
   b. It minimizes MME relocation in case of UE mobility.
   c. It prevents MME from getting into overload condition.
   d. It allows E-UTRAN resources to be shared among different network operators.

10. Which of the following is one of the three elements in an EPS bearer?
    a. Radio access bearer between the UE and the RNC
    b. GTP tunnel between the eNodeB and the SGW
    c. GTP tunnel between the MME and the PGW
    d. GTP tunnel between the SGSN and the GGSN

11. Which of the following regarding an EPS default bearer is TRUE?
    a. It can be a GBR bearer.
    b. It is activated on demand.
    c. It is associated with two QoS parameters, QCI and ARP.
    d. It provides connection to the same PDN with different QoS treatment from other EPS bearers.

12. Which of the following is an EPS session management (ESM) function performed by the MME?
    a. Provide paging support to idle UEs
    b. Create, modify, and delete EPS bearers
    c. Determine if a roaming UE is allowed to enter the network
    d. Perform network element selection
13. Given the exhibit, which APN is used when the UE attempts to access a service and specifies APN-3?

a. APN-1  
b. APN-2  
c. APN-3  
d. APN-4

14. A new Diameter profile is configured on the MME. Which interface(s) in the given exhibit can be associated with this profile?

a. S1-MME only  
b. S6A only  
c. S11 only  
d. S1-MME, S6A, and S11

15. Which of the following identifies how the eNodeB selects an MME?

a. It selects an MME based on the statically defined MME IP address provided by the HSS.  
b. It selects an MME from its configured MME pool(s) serving the TAI.  
c. It selects an MME that serves the area where the UE is located.  
d. It selects an MME by performing a DNS query.
16. Which of the following is NOT provided by the HSS in order for the MME to select a PGW?
   a. PGW FQDN
   b. APN FQDN
   c. TAI FQDN
   d. PGW IP address

17. The DNS NAPTR records in the exhibit are returned to the MME during SGW/PGW selection. If gateway selection mode 1 is used, which SGW/PGW pair does the MME select?

<table>
<thead>
<tr>
<th>Order</th>
<th>Preference</th>
<th>Flags</th>
<th>Services</th>
<th>Replacement</th>
</tr>
</thead>
<tbody>
<tr>
<td>200</td>
<td>50</td>
<td>“a”</td>
<td>x-3gpp-sgw-x-s11-gtp</td>
<td>topon.eth10.sgw01.pool5.nodes.3gppnetwork.org</td>
</tr>
<tr>
<td>100</td>
<td>300</td>
<td>“a”</td>
<td>x-3gpp-sgwxx-s11-gtp</td>
<td>topon.eth10.sgw02.pool3.nodes.3gppnetwork.org</td>
</tr>
</tbody>
</table>

   a. sgw01 and pgw01
   b. sgw01 and pgw02
   c. sgw02 and pgw01
   d. sgw02 and pgw02

18. When MME load balancing is required, how does the serving MME select a new MME to serve the UE?
   a. It selects a new MME with the next lowest relative MME capability.
   b. It selects a new MME with the best order and preference values.
   c. It selects a new MME based on the TAI where the UE currently resides.
   d. It selects a new MME that is topologically closest to the selected SGW/PGW.

19. Which of the following statements about a tracking area list (TA list) is FALSE?
   a. A UE may move within its assigned TA list without the need to notify the network.
   b. The MME assigns a TA list to a UE based on its subscription information in the HSS.
   c. Idle UE initiates the TAU procedure when the periodic tracking area update timer expires.
   d. When MME receives a TAU, it checks if the UE requests access to a restricted tracking area.

20. Which of the following actions is NOT performed by the MME for providing paging support?
   a. Send initial paging message to a list of UEs provided by HSS
   b. Start T3413 timer and wait for a response to the paging message
   c. Stop T3413 timer if UE responds to the paging message
   d. Send a failure message to the SGW if no response is received after a maximum number of paging attempts

21. Which of the following statements regarding handover is TRUE?
   a. Handover can occur when UE is in ECM-CONNECTED state.
   b. X2-based handover is used when S1-based handover attempt fails.
   c. During X2-based handover, MME may remain the same or be relocated.
   d. During handover with SGW relocation, MME selects a new SGW in round-robin manner.
22. Which of the following statements about types of PLMNs is FALSE?
   a. Visited PLMN is where a UE is currently registered and is not the UE’s home network.
   b. Equivalent PLMNs are shared by multiple operators and treated the same as home PLMN.
   c. Serving PLMN is where a UE is currently being served.
   d. Home PLMN is where a UE is subscribed.

23. Which of the following statements about local breakout roaming architecture is FALSE?
   a. UE data traffic is serviced by VPLMN.
   b. S8 interface is used between SGW in VPLMN and PGW in HPLMN.
   c. S9 interface is used between PCRF in VPLMN and PCRF in HPLMN.
   d. S6a interface is used between MME in VPLMN and HSS in HPLMN.

24. Which of the following statements about multiple operator core network (MOCN) and gateway core network (GWCN) sharing architecture models is TRUE?
   a. Only E-UTRAN is shared in MOCN
   b. Only MME is shared in MOCN
   c. Only E-UTRAN is shared GWCN
   d. Only MME is shared in GWCN

25. Which of the following is a function of the MME for providing IMS emergency services?
   a. MME selects a PGW based on user subscription information provided by HSS.
   b. MME applies QoS parameters that are provisioned for emergency bearer establishment.
   c. MME performs security procedures for all authenticated and unauthenticated UEs.
   d. MME selects another MME with a higher relative MME capacity to handle emergency calls.

26. What is the function of the EPS serving mobile location center (E-SMLC)?
   a. It provides lawful interception activation function.
   b. It calculates location information.
   c. It performs MBMS session control signaling.
   d. It sends a warning message to the MME of a specific area.

27. Given the exhibit, which type of message is sent from the MME to the lawful enforcement monitoring facility (LEMF) for lawful interception support?
   a. CC message only
   b. IRI message only
   c. Both the CC message and IRI message
   d. Both the intercept request message and IRI message
28. Given the exhibit, if GTP-C load control is used, which SGW will have the highest probability of being selected by the MME for new session requests?

<table>
<thead>
<tr>
<th>SGW</th>
<th>Order value (NAPTR DNS)</th>
<th>Effective available load calculated by MME</th>
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</thead>
<tbody>
<tr>
<td>SGW1</td>
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<td>SGW3</td>
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<td>200</td>
</tr>
<tr>
<td>SGW4</td>
<td>100</td>
<td>400</td>
</tr>
</tbody>
</table>

a. SGW1  
b. SGW2  
c. SGW3  
d. SGW4

29. What information does eNodeB use to support MME load balancing?
   a. Order value in the DNS NAPTR record  
   b. Preference value in the DNS NAPTR record  
   c. Weight factor in the S1-AP message  
   d. Relative available load calculated by the MME

30. Which of the following statements about session restoration is FALSE?
   a. Session restoration rapidly restores UE sessions during S1 handover.  
   b. MME restoration procedure can be either network-initiated or UE-initiated.  
   c. MME restoration occurs when S1-MME link fails.  
   d. SGW restoration occurs when S11 link fails.

31. Which procedure is used to provide integrity protection between the UE and the MME?
   a. AKA procedure  
   b. SMC procedure  
   c. MEI checking procedure  
   d. Attach procedure

32. What is the function of the International Mobile Equipment Identity (IMEI) checking procedure?
   a. Prevents registration of blacklisted and unknown equipment  
   b. Ensures integrity protection and ciphering of NAS signalling  
   c. Hides the UE’s permanent identity by providing a unique temporary identification  
   d. Provides authentication and establishment of a shared key between the UE and the network

33. Which of the following messages are exchanged between the MME and the HSS during the UE attachment procedure?
   a. Attach Request / Attach Accept  
   b. Create Session Request / Create Session Response  
   c. ME Identity Check / ME Identity Ack  
   d. Authentication Information Request / Authentication Information Answer

34. Which procedure can be initiated when a UE relocates to a new tracking area?
   a. Attach  
   b. TAU  
   c. S1 release  
   d. Service request
35. Which of the following is performed by the MME during a service request procedure?
   a. MME performs AKA procedure to authenticate the UE.
   b. MME retrieves UE data from the SRS to continue serving the UE.
   c. MME requests SGW to re-establish S5 bearer for the UE.
   d. MME requests eNodeB to establish radio and S1 bearers for the UE.

36. Which of the following actions is performed by the MME during an X2-based handover procedure?
   a. MME determines if SGW relocation is required.
   b. MME performs a target MME discovery using DNS.
   c. MME selects the target eNodeB for handover.
   d. MME triggers the establishment of an indirect tunnel.

37. Which of the following elements CANNOT initiate a Detach procedure?
   a. UE
   b. MME
   c. EIR
   d. HSS

38. What is the function of the “fns_monitor” command?
   a. It is used to perform system overall health check on a specific VM.
   b. It is used to perform CMM overall health check.
   c. It is used to trigger an alarm if the system monitoring task fails.
   d. It is used to monitor external connectivity between CMM and its peering network elements.

39. In Nokia Cloud Mobility Manager (CMM), when are PCMD records generated?
   a. Automatically per UE, per 3GPP procedure
   b. Automatically on a per-interval basis
   c. When requested by network operator
   d. Automatically when the CMM health check fails

40. Given the exhibit, which of the following is a possible reason why the linkOperationState for HSS is shown as “unknown”?
   a. IMSI to HSS mapping is not configured.
   b. GTP profile is not associated with the S6a interface.
   c. This HSS has a relative capacity of zero.
   d. This HSS with an IP address 10.10.9.1 is not discovered from the DNS.
# Answer Key

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