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**Exam** : **4A0-M02**

**Title** : Alcatel-Lucent Mobile Gateways for the LTE Evolved Packet Core

**Version** : Demo

1. Which of the following statements is FALSE regarding the eNodeB?

- A. The eNodeBs may be interconnected with each other via an X2 interface.
- B. The eNodeB is an element of the EPC core.
- C. The eNodeBs are connected to the EPC core via the S1 interface.
- D. During an IMSI attach, the eNodeB selects an MME to service the UE.
- E. The eNodeB performs the compression and encryption of the user data stream.

Answer: B

2. Which of the following statements most accurately describes the MME?

- A. The MME selects the SGW and the PGW for a given UE.
- B. The MME is responsible for the bearer management.
- C. The MME communicates with both the E-UTRAN and the EPC via GTP-C tunnels.
- D. The MME performs the user authentication and authorization using the information provided by the HSS.
- E. All of the above answers are correct.
- F. Only answers A, B and D are correct.

Answer: F

3. A UE needs to get an IP address before it can communicate to any PDN over the LTE network. Which of the following statements are FALSE regarding the process of the IP address allocation? (Choose two)

- A. A PGW may obtain an IP address from a RADIUS server and assign it to the UE.
- B. A PGW may assign the IP address from its local address pools.
- C. An SGW may obtain a static IP address from the HSS server and assign it to the UE.
- D. An SGW may obtain an IP address from a RADIUS server and assign it to the UE.
- E. A PGW may obtain an IP address from a DHCP server and assign it to the UE.

Answer: C, D

4. Which of the following statements is TRUE regarding the IP connectivity between a UE and a PDN?

- A. A UE gets an IPv4 address and/or an IPv6 prefix per APN.
- B. A PGW forwards the UE's IP packets to the PDN based on the address of the PDN server.
- C. When a UE sends an IP packet to a PDN over the EPC core, the eNodeB forwards the encapsulated packet to the SGW by looking into its IP routing table to determine how to reach the PDN server.
- D. The SGW forwards the UE's IP packets to the PGW based on the address of the PDN server.
- E. Only answers C and D are correct.
- F. Only answers A and B are correct.

Answer: F

5. In a 3G network, which of the following is used to build a PDP context between a UE and the GGSN when a direct tunnel is not used?

- A. An end-to-end GTP tunnel between the UE and the GGSN.
- B. A Radio Access Bearer between the UE and the NodeB and a GTP tunnel between the NodeB and the GGSN.
- C. A Radio Access Bearer between the UE and the SGSN and a GTP tunnel between the SGSN and the

GGSN.

D. A Radio Access Bearer between the UE and the SGSN.

E. None of the above answers are correct.

Answer: C

6. Which of the following statements is FALSE regarding the EPS bearers?

A. The default bearer is initiated by either the UE or the PCRF.

B. The default bearer is always the first bearer established to an APN.

C. An AF server may initiate a dedicated bearer to a UE.

D. EPS bearers that connect a given UE to a single PGW may use different IP subnets.

E. The default bearer remains active throughout the lifetime of the APN connection.

Answer: A

7. Which of the following LTE interfaces are used for the communication of user data? (Choose one best answer)

A. The S1-MME interface and the S11 interface.

B. The S1-U interface.

C. The S5 interface.

D. The S1-U interface, the S5 interface and the LTE-Uu interface.

E. Only answers A, B and C are correct.

F. Only answers B and C are correct.

Answer: D

8. The S5 is the interface used for the communication between the SGW and the PGW. Which of the following transport protocols is used by this interface?

A. GTP/TCP

B. GTP/UDP

C. GTP/IP

D. GTP/SCTP

E. None of the above answers are correct

Answer: B

9. Based on the information shown in the exhibit, which of the following is the PLMN ID?

```

A:SGW# show mobile-gateway serving ue-context imsi 302720123456789 detail
-----
UE context detail
-----
IMSI           : 302720123456789      State           : ACTIVE
MEI            : 987654321055550     MSISDN          : 003020161378488
Network MCC    : 302                 Network MNC     : 720
Tracking area id : 0x1011            Cell Id         : 0x1
NAI            : 0302720123456789@epc.mnc072.mcc302.3gppnetwork.org

GW/Group/Card  : 1/1/2              RAT             : EUTRAN
PDN contexts   : 1                  Bearers         : 1

S11 MME ctrl TEID: 0x325ac1          S11 SGW ctrl TEID: 0x4100800
S11 MME ctrl addr: 10.10.2.2
S11 SGW ctrl addr: 10.10.2.1
Charging SGW address : 72.22.24.163

Inter ENB X2 HO : 0                  Inter ENB S1 HO : 0
S1 release procs : 0                 Paging Attempts  : 0
UE init svc req  : 0

-----
Number of UEs : 1

```

- A. 302
- B. 720
- C. 123456789
- D. 9876543
- E. 30201613
- F. 302720

Answer: F

10. Which of the following statements is FALSE regarding the Tracking Area (TA)?

- A. A TA is a set of eNodeBs that are defined by a UE itself.
- B. A TA is the smallest geographical area in which a UE can roam without performing a Tracking Area Update (TAU) other than periodic TAU as required.
- C. A Tracking Area Identity (TAI) is used to identify each tracking area.
- D. The Tracking Area Identity (TAI) is assigned by the service provider.
- E. One TA may be served by one or more than one MME.

Answer: A

11. Which of the following statements is FALSE regarding the UE network attachment procedure?

- A. The UE is served by an eNodeB.
- B. The eNodeB selects one MME to serve the UE.
- C. The MME selects one SGW to serve the UE.
- D. The SGW selects one PGW to serve the UE
- E. The PGW selects one PCRF server if required.

Answer: D

12. Which of the following statements is FALSE regarding the UE paging process?

- A. The SGW performs downlink data buffering while the S1 bearer is being established.
- B. The SGW initiates the paging messages towards the UE.
- C. The PGW is not aware of the paging process.
- D. The UE initiates the service request procedure once it receives the paging message.

E. The paging procedure is controlled by the MME.

Answer: B

13. Based on the information shown in the exhibit, when the SGW receives an IP packet from the UE, which of the following is the GTP TEID value expected to be received in the GTP packet header?

```

A:SGW# show mobile-gateway serving bearer-context imsi 302720123456789 detail
-----
Bearer context detail
-----
IMSI           : 302720123456789
APN            : ipd.alcatel-lucent.com
Bearer Id     : 5                Bearer type   : Default
Up Time       : 0d 00:02:07

QCI/ARP       : 9/12
QoS UL MBR    : 0 Kbps           QoS DL MBR   : 0 Kbps
QoS UL GBR    : 0 Kbps           QoS DL GBR   : 0 Kbps

S5 PGW Data TEID : 0xd05025       S5 SGW Data TEID : 0x4b00805
S5 PGW Data addr : 10.10.7.2
S5 SGW Data addr : 10.10.7.1
S1U eNodeB TEID : 0x21           S1U SGW TEID    : 0x4b00825
S1U eNodeB addr : 10.10.2.100
S1U SGW address  : 72.22.24.163

S5 UL packets   : 404532         S5 UL bytes    : 21906876
S1U DL packets  : 404514         S1U DL bytes   : 579961815
S11 QoS Modify  : 0

-----
Number of bearer contexts : 1
-----

```

- A. 0xd05025
- B. 0x4b00805
- C. 0x21
- D. 0x4b00825
- E. None of the above answers are correct.

Answer: D

14. Which of the following interfaces is not using the GTP-C protocol?

- A. The X2 interface.
- B. The S1-U interface.
- C. The S4 interface.
- D. The S5 interface.
- E. The SGi interface.

Answer: E

15. Which of the following most accurately identifies a GTP tunnel on the Alcatel-Lucent 7750 MG by default?

- A. ATEID
- B. The System IP address
- C. A UDP port number
- D. ATEID and the System IP address
- E. ATEID, the System IP address and a UDP port number

Answer: E

16. There is an active GTP path between an Alcatel-Lucent SGW and an Alcatel-Lucent PGW, On the SGW. Which of the following CLI commands is used to check the "Restart Count" value of the PGW?

- A. show mobile-gateway serving ref-point-peers s5
- B. show mobile-gateway serving ref-point-stats s5
- C. show mobile-gateway serving bearer-stats s5
- D. show mobile-gateway serving path-mgmt-stats s5
- E. None of the above answers are correct.

Answer: D

17. An Alcatel-Lucent SGW is only connected to an Alcatel-Lucent PGW. Based on the information shown in the exhibit, how many GTP-C tunnels are established between the SGW and the PGW?

```
*A:SGW# show mobile-gateway serving bearer-context
=====
Bearer context
=====
IMSI          APN           Bearer  Type  QCI/ARP  MBR/GBR
-----
302720123456789  ipd.alcatel  5       Def   9/12    -
302720123456789  ipd.alcatel  6       Ded   2/12    30000/20000
302720123456790  ipd.alcatel  5       Def   9/12    -
302720123456790  ipd.alcatel  6       Ded   2/12    30000/20000
302720123456791  ipd.alcatel  5       Def   9/12    -
302720123456791  ipd.alcatel  6       Ded   2/12    30000/20000
=====
Number of bearer contexts : 6
=====
```

- A. 1
- B. 2
- C. 3
- D. 4
- E. 6

Answer: E

18. Which of the following statements most accurately describes the Diameter protocol?

- A. The Diameter is a peer-to-peer protocol that uses the TCP or SCTP as the transport protocol.
- B. A Diameter peer could act as a Diameter client or a Diameter server to its remote peer.
- C. The Alcatel-Lucent 7750 PGW acts as a Diameter client to the PCRF server via the Gx interface.
- D. The Diameter protocol uses TCP and SCTP port number 3868.
- E. All of the above answers are correct.
- F. Only answers A and B are correct.

Answer: E

19. Which of the following most accurately describes the messages used to manage a Diameter connection path?

- A. The Capabilities-Exchange message
- B. The Device-Watchdog message
- C. The Credit-Control message
- D. The Disconnect-Peer message

E. All of the above answers are correct

F. Only answers A, B and D are correct

Answer: F

20. Which of the following statements is FALSE regarding the S1-MME interface?

A. It is the control plane interface between the E-UTRAN and the MME.

B. It is used to signal the TEIDs for the S1 bearers between the eNodeB and the SGW.

C. The eNodeB receives the Paging messages over the S1-MME interface.

D. It is used for the management of the Radio Access Bearers.

E. It is based on the IP/UDP protocols.

Answer: E