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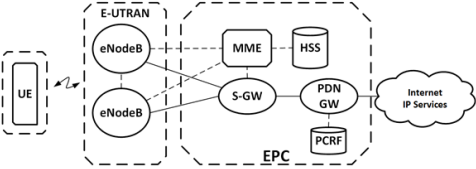
Question 1 (3 points) ✓ Saved

What is the minimum bit rate for mobile communication system before it can be classified as third generation system?

- ☐ 2 Mbps
- ☒ 384 kbps
- ☐ 512 kbps
- ☐ 128 kbps

Question 2 (4 points) ✓ Saved

The functions of Enhanced Node-B (eNodeB):

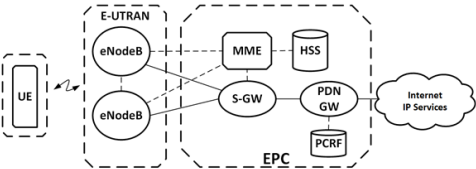


- ☐ Buffers the downlink data when UE is in IDLE mode

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Question 2 (4 points) ✓ Saved

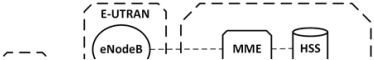
The functions of Enhanced Node-B (eNodeB):



- ☐ Buffers the downlink data when UE is in IDLE mode
- ☒ multi-antenna techniques
- ☒ radio-resource management
- ☒ scheduling and adaption control to improve latency and throughput of the network

Question 3 (4 points) ✓ Saved

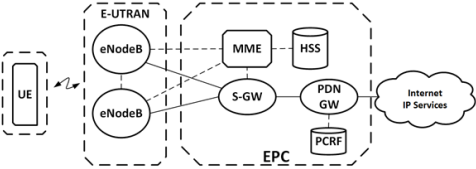
The functions of Packet Data Network Gateway (PDN-GW):



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Question 3 (4 points) ✓ Saved

The functions of Packet Data Network Gateway (PDN-GW):



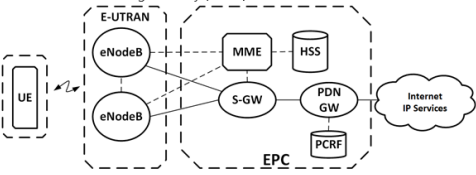
- ☒ Anchor point in home or visited network for all IP-based access
- ☐ Supports roaming capabilities
- ☒ Processes all IP packets to/from UE
- ☒ Session-based user authentication and IP address allocation (IPv4/v6)

Question 4 (4 points) ✓ Saved

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Question 4 (4 points) ✓ Saved

The functions of Serving Gateway (S-GW):



- ☒ Processes all IP packets to/from UE
- ☐ Does bearer management for the UE
- ☒ Act as mobility anchor for the data bearers
- ☒ Buffers the downlink data when UE is in IDLE mode

Question 5 (4 points) ✓ Saved

Enhanced MIMO technique provides:

- ☒ higher data rates

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Question 5 (4 points) ✓ Saved

Enhanced MIMO technique provides:

- ☒ higher data rates
- ☐ tunnel control, paging, handovers
- ☒ wider coverage
- ☐ user authentication and IP address allocation

Question 6 (4 points) ✓ Saved

Major categories of enhancements in LTE-A:

- ☒ Enhanced MIMO technique to increase spectral efficiency
- ☒ Relay Node to improve data communication especially cell boundary to increase coverage
- ☒ Carrier aggregation to leverage more spectrum and increase data rates
- ☐ Increase transmit power to provide wider coverage

Question 7 (4 points) ✓ Saved

The goals of LTE-A:

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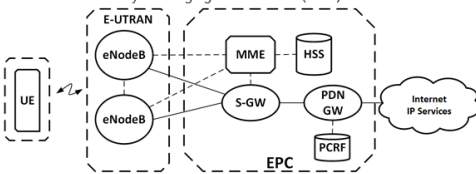
Question 7 (4 points) ✓ Saved

The goals of LTE-A:

- ☒ Decrease latency
- ☒ Increased data throughput
- ☒ Increase reliability data transmission
- ☐ Supports roaming capabilities

Question 8 (4 points) ✓ Saved

The functions of Policy & Charging Rule Function (PCRF):

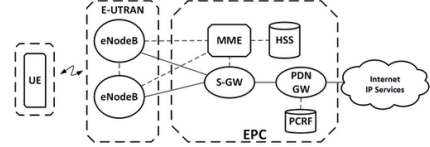


- ☒ Interacts with PGW to enforce per session or per flow policies

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Question 8 (4 points) Saved

The functions of Policy & Charging Rule Function (PCRF):



- ☒ Interacts with PGW to enforce per session or per flow policies
- ☒ Supports roaming capabilities
- ☐ Processes all IP packets to/from UE
- ☐ Interacts with MME for user authentication and profile download

Question 9 (4 points) Saved

The key features of E-UTRAN are:

- ☒ high spectral efficiency
- ☐ fixed bandwidth
- ☒ simplification of radio network
- ☒ very low latency

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Question 10 (4 points) Saved

The modulation techniques used in LTE:

- ☒ 16-QAM
- ☐ 256-QAM
- ☒ QPSK
- ☒ 64-QAM

Question 11 (4 points) Saved

Which of the following components are parts of the BSS in UMTS architecture?

- ☒ Node-B
- ☒ RNC
- ☐ USIM
- ☐ ME

Question 12 (3 points) Saved

LTE is the next generation 3GPP, "3rd Generation Partnership Project" radio access network based on Evolved Packet System (EPS) which is started with the technology direction of 3GPP release 8

- ☒ True
- ☐ False

Page 1:

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Question 13 (4 points) Saved

The key features of EPC are:

- ☒ Simple protocol architecture
- ☒ Optimization for IP traffic and services
- ☒ Improvement in latency, capacity, throughput, idle to active transitions
- ☐ support of variable bandwidth

Question 14 (4 points) Saved

Evolved Packet System (EPS) is comprised of:

- ☒ Evolved Universal Terrestrial Radio Access Network (E-UTRAN)
- ☒ Evolved Packet Core (EPC)
- ☐ Evolved Packet Coordinator (EPC)
- ☐ Evolved Universal Terrestrial Radio Assess Network (E-UTRAN)

Question 15 (4 points) Saved

Carrier aggregation technique provides:

- ☒ boost transmission capacity, achieve higher peak data rates
- ☒ better coverage for medium data rate
- ☒ Increase reliability data transmission
- ☐ increase latency

Question 16 (4 points) Saved

The use of lower orders of modulation and lower code rates provide:

- ☒ reduce the required link budoeet. transmission power. and interference

Page 1:

1	2	3
4	5	6
7	8	9
10	11	12
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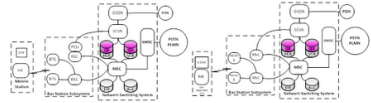
Question 16 (4 points) ✓ Saved

The use of lower orders of modulation and lower code rates provide:

- ☒ reduce the required link budget, transmission power, and interference
- ☒ better coverage
- ☐ achieve higher peak data rates
- ☐ Decrease latency

Question 17 (4 points) ✓ Saved

By comparison between two architectures, which of the subsystems were required to make changes from 2.5G to 3G?



- ☐ Mobile Switching Centre
- ☒ Base Station Subsystem (BSS)
- ☐ Network Switching System
- ☒ Radio Subsystem

Question 18 (2 points) ✓ Saved

LTE - Cat M1 stands for LTE-MTC low power wide area (LPWA) technology standard published by 3GPP in the Release 13 specification for IoT applications.

- ☒ True
- ☐ False

Page 1:

1	2	3
4	5	6
7	8	9
10	11	12
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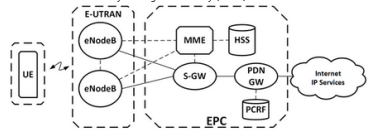
Question 19 (3 points) ✓ Saved

Which one of the following is used in LTE Downlink Transmission Scheme?

- ☐ AFHSS
- ☒ OFDMA
- ☐ SC-FDMA
- ☐ DSSS

Question 20 (4 points) ✓ Saved

The functions of Mobility Management Entity (MME):



- ☒ Interacts with HSS for user authentication, profile download
- ☐ Admission control and congestion control
- ☐ radio-resource management
- ☒ Responsible for NSA signalling and NAS signalling security

Question 21 (4 points) ✓ Saved

LTE-CatM1 supports IoT through:

- ☒ lower device complexity and provides extended coverage
- ☐ higher data rate and low power consumption

Page 1:

1	2	3
4	5	6
7	8	9
10	11	12
13	14	15
16	17	18
19	20	21
22	23	24
25	26	27

Question 21 (4 points) ✓ Saved

LTE-CatM1 supports IoT through:

- ☒ lower device complexity and provides extended coverage
- ☐ higher data rate and low power consumption
- ☐ wider bandwidth and better throughput
- ☒ allowing the reuse of the LTE installed base

Question 22 (3 points) ✓ Saved

Which one of the following is used in LTE Uplink Transmission Scheme?

- ☐ DSSS
- ☐ AFHSS
- ☒ SC-FDMA
- ☐ OFDMA

Question 23 (4 points) ✓ Saved

Features of Narrowband IoT (NB-IoT) are:

- ☐ optimized for applications that need to communicate large amounts of data over long periods of time
- ☒ cutting the installation cost due to low cost device
- ☒ able to provide security, reliability, and guaranteed quality of service
- ☒ operating in licensed spectrum and existing established mobile networks

Question 24 (4 points) ✓ Saved

The functions of Home Subscriber Server (HSS):

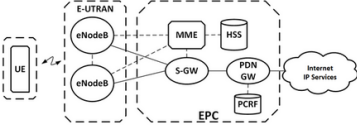
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25	26	27

✓ [Viewing 11 questions, 9 questions are saved. 2 questions are marked.](#)

Question 24 (4 points) ✓ Saved

The functions of Home Subscriber Server (HSS):



- ☐ Admission control and congestion control
- ☐ Handle mobility management in Idle mode
- ☒ Stores current location information (e.g. assigned MME, Serving SGW)
- ☒ Stores one or more subscription profiles containing IMSI, QoS, Services, etc.

Question 25 (4 points) ✓ Saved

Which of the following sections in the EDGE architecture is/are being upgraded to support UMTS architecture?

- ☒ Radio Station Subsystem
- ☒ Base Station Subsystem
- ☒ Mobile Station
- ☐ Network Switching Subsystem

Question 26 (2 points) ✓ Saved

LTE Cat **NB-I** stands for Narrowband IoT (NB-IoT) for Low Power Wide Area (LPWA) technology that will connect many more devices to the Internet of Things and enable

Page 1:

1	2	3
4	5	6
7	8	9
10	11	12
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Question 25 (4 points) ✓ Saved

Which of the following sections in the EDGE architecture is/are being upgraded to support UMTS architecture?

- ☒ Radio Station Subsystem
- ☒ Base Station Subsystem
- ☒ Mobile Station
- ☐ Network Switching Subsystem

Question 26 (2 points) ✓ Saved

LTE Cat **NB-I** stands for Narrowband IoT (NB-IoT) for Low Power Wide Area (LPWA) technology that will connect many more devices to the Internet of Things and enable to implement many applications.

- ☒ True
- ☐ False

Question 27 (4 points) ✓ Saved

Which of the following bandwidths are supported in LTE?

- ☒ 5 MHz
- ☒ 20 MHz
- ☐ 14 MHz
- ☐ 7 MHz

[Submit Quiz](#) 27 of 27 questions saved