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Quiz: Module 2

Latest Submission Grade 100%

1. What was the motivation for changing from analog to digitized voice in the 1990s for cellular communication? (select all that apply)

2 / 2 points

☐ A: Digitized voice is more compact but slower

☐ B: Analog voice is more compact but slower

☒ C: Digitized voice offers better quality

✓ Correct

Feedback: Congratulations! Choices (C,D) are the correct responses. Digitized voice offers better quality and it is both more compact and more efficient.

☒ D: Digitized voice is more compact and more efficient

✓ Correct

Feedback: Congratulations! Choices (C,D) are the correct responses. Digitized voice offers better quality and it is both more compact and more efficient.

2. Which generation of cellular technologies transformed the use of the cell phone and allowed it to be used for both voice and high-speed internet use?

1 / 1 point

☐ A: 1G

☐ B: 2G

☒ C: 3G

☐ D: 4G

✓ Correct

Congratulations! Choice (C) is the correct response. 3G was the first generation that allowed cell phones to use both voice and high-speed internet.

3. Which are the three main service classes offered by 5G? (select all that apply)

3 / 3 points

☒ A: eMBB

✓ Correct

Congratulations! Choices (A,B,D) are the correct responses – eMBB, URLLC, and M-IoT/mMTC are the three main service classes of 5G.

☒ B: URLLC

✓ Correct

Congratulations! Choices (A,B,D) are the correct responses – eMBB, URLLC, and M-IoT/mMTC are the three main service classes of 5G.

☐ C: PDT

☒ D: M-IoT/ mMTC

✓ Correct

Congratulations! Choices (A,B,D) are the correct responses – eMBB, URLLC, and M-IoT/mMTC are the three main service classes of 5G.

4. What are some modern use cases that necessitate 5G? (select all that apply)

3 / 3 points

☒ A: High speed mobility



Correct

Congratulations! Choices (A, C, and D) are the correct responses. High speed mobility, augmented reality, and connected vehicles are use cases that necessitate 5G.

☐ B: Increasing demand for voice calls

☒ C: Augmented reality



Correct

Congratulations! Choices (A, C, and D) are the correct responses. High speed mobility, augmented reality, and connected vehicles are use cases that necessitate 5G.

☒ D: Connected vehicles



Correct

Congratulations! Choices (A, C, and D) are the correct responses. High speed mobility, augmented reality, and connected vehicles are use cases that necessitate 5G.

☐ E: Browsing the internet

5. Which of the following is true about eMBB?

1 / 1 point

- ☐ A: eMBB emphasizes maximizing battery life rather than speed
- ☐ B: Extremely low latency is the most important feature in eMBB services
- ☐ C: eMBB focuses most on very stringent reliability
- ☒ D: eMBB emphasizes maximizing speed



Correct

Feedback: Congratulations! Choice (D) is the correct response – eMBB emphasizes maximizing speed.

6. Which of the following values best describe eMBB in 5G?

2 / 2 points

- ☐ A: Peak user data rate of 100 Mbps; peak network throughput <1 Gbps
- ☒ B: Peak user data rate >10 Gbps; peak network throughput >1 Tbps
- ☐ C: Peak user data rate ~500 Mbps; peak network throughput <1 Gbps
- ☐ D: Peak user data rate <5 Gbps; peak network throughput >10 Gbps



Correct

Congratulations! Choice (B) is the correct response – Peak user data rate > 10 Gbps and the peak network throughput is greater than 1 Tbps

7. Which service class emphasizes power conservation?

1 / 1 point

- ☐ A: eMBB
- ☐ B: URLLC
- ☒ C: mMTC
- ☐ D: C-V2X



Correct

Feedback: Congratulations! Choice (C) is the correct response – mMTC emphasizes power consumption.

8. Which of these are some of the basic features of mMTC/ M-IoT communications? (select all that apply)

4 / 4 points

☒ A: High device density



Correct

Choices (A, B, C, and D) are the correct responses – High device density, long-range operation, low-cost devices, and battery life extension are all features of mMTC/M-IoT communications. All four choices must be selected to get credit.

☒ B: Long-range operation



Correct

Choices (A, B, C, and D) are the correct responses – High device density, long-range operation, low-cost devices, and battery life extension are all features of mMTC/M-IoT communications. All four choices must be selected to get credit.

☒ C: Simple, low-cost devices



Correct

Choices (A, B, C, and D) are the correct responses – High device density, long-range operation, low-cost devices, and battery life extension are all features of mMTC/M-IoT communications. All four choices must be selected to get credit.

☒ D: Battery life extension



Correct

Feedback: Choices (A, B, C, and D) are the correct responses – High device density, long-range operation, low-cost devices, and battery life extension are all features of mMTC/M-IoT communications. All four choices must be selected to get credit.

9. Which services likely need to have the most stringent URLLC requirements? (select all that apply)

2 / 2 points

☐ A: Web browsing

☒ B: Remote Surgery



Correct

Congratulations! Choices (B and C) are the correct responses – Both remote surgery and C-V2X require stringent latency and reliability.

☒ C: C-V2X



Correct

Congratulations! Choices (B and C) are the correct responses – Both remote surgery and C-V2X require stringent latency and reliability.

☐ D: Conference calls

10. Which of the following is true about URLLC?

1 / 1 point

☒ A: For URLLC services both reliability and latency are needed at optimal levels

☐ B: URLLC can optimize for reliability or latency but not both

☐ C: URLLC focuses on reducing power consumption and saving battery life

☐ D: URLLC usually needs to optimize for latency but only in some use cases is reliability important



Correct

Feedback: Congratulations! Choice (A) is the correct response. URLLC services have stringent requirements for both reliability and latency.