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Quiz: Module 1

Latest Submission Grade 100%

1. Frequency is measured in _____(1) and wavelength in ____ (2) **1 / 1 point**

Note: Choices written as (answer1; answer2)

- ○ A: meters; Hz
- ◉ B: Hz; meters
- ○ C: watts; meters
- ○ D: meters; ohms

Correct
Congratulations! The correct answers is (B) - frequency is measured in hertz (Hz) and wavelength is measured in meters.

2. The transmitter _____(1) and the receiver ____ (2). **1 / 1 point**

Note: Choices written as (answer1; answer2)

- ○ A: modulates; encodes
- ○ B: demodulates; modulates
- ◉ C: modulates; demodulates
- ○ D: demodulates; decodes

Correct
Congratulations! The correct answer is (C) because the transmitter modulates and the receiver demodulates.

3. How does information travel in wireless transmissions? **1 / 1 point**

- ◉ A: carrier waves
- ○ B: SNR
- ○ C: guard band
- ○ D: power amplifiers

Correct
Congratulations! Choice (A) is the correct response – Carrier waves carry data in wireless transmissions.

4. Which of the following factors can directly introduce errors in wireless transmission? (select all that apply) **2 / 2 points**

- ☐ A: Vehicular traffic
- ☑ B: Electronic/ thermal noise

Correct
Congratulations! That is correct. The correct answers are (B and D). Electronic/ thermal noise and interference are the choices that directly introduce error in wireless transmission.

- ☐ C: Wind

C: Wind

- [x] D: Interference

Correct
Congratulations! That is correct. The correct answers are (B and D). Electronic/ thermal noise and interference are the choices that directly introduce error in wireless transmission.

5. Which range of frequencies is allocated to mobile phones? **2 / 2 points**

- ( ) A: 300 kHz to 10 GHz
- ( ) B: 100 MHz to 75 GHz
- (•) C: 450 MHz to 39 GHz
- ( ) D: 400 MHz to 50 GHz

Correct
Feedback: Congratulations! Choice (C) is the correct response. Currently the frequencies allocated to mobile phones can be from 450 MHz to 39 GHz.

6. What is true about channel bandwidth? (select all that apply) **2 / 2 points**

- [x] A: It determines data capacity of a wireless channel

Correct
Congratulations! Choices (A and D) are the correct responses – Channel bandwidth determines how much data the wireless channel can carry i.e. its data capacity. And when done carefully, the channel bandwidth can be shared among multiple users - that's what multiple access is.

- [ ] B: It is a measurement of cell size
- [ ] C: C: It is measured in meters
- [x] D: It can be carefully shared among multiple users.

Correct
Congratulations! Choices (A and D) are the correct responses. Channel bandwidth determines how much data the wireless channel can carry i.e. its data capacity. And when done carefully, the channel bandwidth can be shared among multiple users - that's what multiple access is.

7. ___(1) requires a pair of channels, whereas _____ (2) works by using a single channel in different directions at different times. **1 / 1 point**

Note: Choices written as (answer1; answer2)

- ( ) A: TDD; FDD
- ( ) B: QAM; FDD
- ( ) C: SNR; TDD
- (•) D: FDD; TDD

Correct
Congratulations! Choice (D) is the correct response. FDD requires a pair of channels and TDD works by using a single channel in different directions at different times.

8. Which of the following can directly affect your data rate? (select all that apply) **4 / 4 points**

- [x] A: Signal to Noise ratio

Correct
Congratulations! Choices (A,B,C and D) are the correct responses. Signal to noise ratio, channel capacity, network load, and spectral efficiency all affect data rate.

- [x] B: Channel capacity

Correct
Congratulations! Choices (A,B,C and D) are the correct responses. Signal to noise ratio, channel capacity, network load, and spectral efficiency all affect data rate.

- [x] C: Network load

Correct
Congratulations! Choices (A,B,C and D) are the correct responses. Signal to noise ratio, channel capacity, network load, and spectral efficiency all affect data rate.

- [x] D: Spectral efficiency

Correct
Congratulations! Choices (A,B,C and D) are the correct responses. Signal to noise ratio, channel capacity, network load, and spectral efficiency all affect data rate.

9. In a cellular network, a phone is served by the same tower no matter where it is located. **1 / 1 point**

- ( ) A: True
- (•) B: False

Correct
Feedback: Congratulations! This statement is false. A phone's serving tower depends upon the phone's location

10. Which of the following are objectives of cellular network design? (select all that apply) **3 / 3 points**

- [x] A: Minimize dropped calls

Correct
Feedback: Congratulations! Choices (A, C and D) are the correct responses – Remember that data rate needs to be maximized.

- [ ] B: Minimize data rate
- [x] C: Maximize coverage area

Correct
Feedback: Congratulations! Choices (A, C and D) are the correct responses – Remember that data rate needs to be maximized.

- [x] D: Limit the number of base stations

Correct
Feedback: Congratulations! Choices (A, C and D) are the correct responses – Remember that data rate needs to be maximized.

11. Select the functions that belong to the core network. (select all that apply) **2 / 2 points**

- [x] A: Authentication

Correct
Congratulations! Choices (A and C) are the correct responses – The Core Network performs authentication and routes data between phones and services.

- [ ] B: Wireless transmission
- [x] C: Routing data between phones and services

Correct
Congratulations! Choices (A and C) are the correct responses – The Core Network performs authentication and routes data between phones and services.

- [ ] D: Determine the frequency spectrum to be used