

**CS433I/533I: Wireless Networks and Mobile Computing
Fall 2021**

Takehome Quiz #3 Solution

- Full name only: _____
- Release date: Oct 4th, 2021 (Monday)
- **Due date: Oct 5th, 2021 (Tuesday) before midnight, 11:59 PM**
- Open book/note; This should be done individually.
- Total 5 points;

1. [] is an arbitrary integer value defined in the 802.11 and it has different values depending on the vendors.

[1 pt]

- Received Signal Strength Indicator (RSSI)

2. Consider sending a 2760-byte datagram into a link that has an MTU of 700 bytes. How many fragments are generated? Show all your work.

[1 pt]

- The maximum size of data field in each fragment = 680 (because there are 20 bytes IP header).
Thus the number of required fragments = $\text{Ceil}((2760 - 20) / 680) = 5$

3. What are the four types of wireless networks identified in our taxonomy in Section 7.1 (Textbook, computer networking – a top-down approach, 7th edition).

[1 pt]

- (i) Single hop, infrastructure-based; (ii) single hop, infrastructure-less; (iii) multi-hop, infrastructure-based; and (iv) multi-hop, infrastructure-less

4. As a mobile node gets farther and farther away from a base station, what are two actions that a base station could take to ensure that the loss probability of a transmitted frame does not increase? See Section 7.2 (Textbook, computer networking – a top-down approach, 7th edition).

[1 pt]

- (i) Increasing the transmission power; and (ii) reducing the transmission rate

5. [True or False]: Ethernet and 802.11 use the same frame structure.

[0.5 pts]

- False

6. [True or False]: In synchronization, when a beacon message is periodically broadcasted, each node is required to hear every beacon to stay synchronized. See Section 7.3 (Textbook, mobile communications, 2nd edition).

[0.5 pts]

- False