CS4331/5331: Wireless Networks and Mobile Computing
Fall 2021

Quiz #4 Solution

- Full name only: _____
- Release date: Oct 15th, 2021 (Friday)
- Closed book/note; No electric device; No discussion/chatting; This should be done individually.
- Total 10 points;

1. [True/False] Suppose that a user with a laptop walks around her house with her laptop, and always accesses the Internet through the same access point. This user is mobile from a network standpoint.

[1 pt]

- False

2. [True/False] Suppose the IEEE 802.11 RTS and CTS frames were as long as the standard DATA and ACK fames. There is no any advantage to using the CTS and RTS frames.

[1 pt]

- True. Suppose there are two stations that want to transmit at the same time, and they both use RTS/CTS. If the RTS frame is as long as a DATA frames, the channel would be wasted for as long as it would have been wasted for two colliding DATA frames. Thus, the RTS/CTS exchange is only useful when the RTS/CTS frames are significantly smaller than the DATA frames.

3. Who assigns a care-of-address?

[1 pt]

- Foreign agent

4. [True/False] Within ad-hoc networks, the access point performs synchronization by transmitting the periodic beacon signal.

[1 pt]

- False

5. The access point buffers all frames destined for stations operating in power-save mode. With every beacon sent by the access point, a [   ] is transmitted that contains a list of stations for which unicast data frames are buffered in the access point.

[1 pt]

- Traffic indication map (TIM)

6. What is a handoff operation? Be specific.

[1 pt]

- Transferring an active connection (e.g., on-going connection) from one cell in a cellular network to the next visiting cell.

7. [   ] is the mechanism of taking a packet consisting of packet header and data and putting it into the data part of a new packet. The reverse operation, taking a packet out of the data part of another packet, is called [   ].

[2 pts]

- Encapsulation; decapsulation

8. (i) *Agent advertisement* messages can be sent as a beacon broadcast into the subnet. For these advertisement, [   ] messages according to RFC1256 are used with some mobility extension. [HINT] This is a communication protocol. (ii) [True/False] For *registration requests*, TCP packets are used for authentication and reliability.

[2 pts]

- Internet control message (or Internet control message protocol (ICMP); False