

Ve489 Computer Networks

Final exam: Session 2

10:25am-10:50am

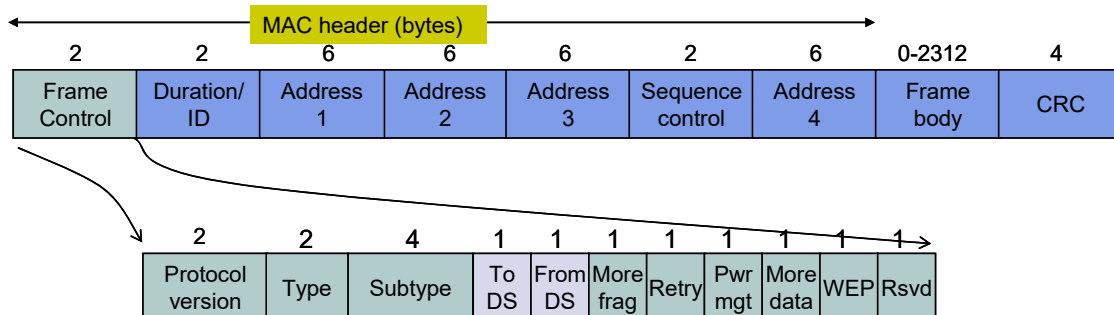
August 4, 2020

Important Notes:

1. All the exam questions are only used for yourself within this class. You are not allowed to distribute to anyone else or post it anywhere. Otherwise, your behavior will lead to violation of honor code.
2. During the exam, you should follow JI's on-line exam rules.
3. Answer your questions in a word file. Don't forget your name and student ID. Also, each answer must be indexed consistently with the question number.
4. Submit your answer within last 5 minutes of each session, by email to the instructor.

Questions of Session 2 (Total: 25 points):

1. What is the relationship between multiple access and medium access control? (2 points)
2. Why does slotted Aloha perform much better than Aloha? (2 points)
3. How does slotted Aloha assist a reservation-based MAC protocol? (3 points)
4. Considering CSMA in Ethernet, why the vulnerable period of the CSMA is twice of the propagation time between the two end nodes? (2 points)
5. The following figure shows the frame control fields if an IEEE 802.11 frame header. What are the usage scenarios of "To DS" and "From DS"? Only two scenarios are needed. (2 points)



6. In IEEE 802.11 network, besides physical carrier sensing, virtual carrier sensing is also designed. Explain what is virtual carrier sensing? Also, explain its key mechanism and the advantages over physical carrier sensing? (2 points)
7. Explain two mechanisms that can resolve the hidden-node issue. (2 points)
8. Why does an Internet IP address consist of subnet ID and host ID? Why is it so critical? (2 points)
9. Explain the pros and cons of distance vector routing and link state routing. (2 points)
10. In a leaky bucket algorithm, non-conforming packets are marked but are not discarded, then how does it help network-layer congestion control? (2 points)
11. Why initial sequence number (ISN) should be selected properly? What mechanism can be used for choosing ISN properly? (2 points)
12. Why does TCP have to conduct graceful closing? (2 points)