

# Computer Science 125

## Midterm - Spring 2014

### Instructions – READ BEFORE STARTING

#### Covers IPv4 and IPv6 (until Mobility)

1. This exam is designed to be an *OPEN BOOK one seating* exam of **1.5 hours** on which you and your partner are to collaborate as defined below.
2. Once you start this exam there is **NO** computer or web access, except for access to course materials.
3. It is imperative that you **do not** discuss with anyone other than your partner any material in this exam until after the start of the next semester.
4. This examination has **two** questions.
5. The test is open book (course text) and open-notes (what was handed out and any notes you took in class).
6. The two questions are weighted the same.
7. The Process:
  - With your partner, read the two questions
  - With your partner, discuss your answer to each question.
  - Each of you will then write up your pair answer to ONE of the questions.
  - You will NOT communicate with your partner during the writing process nor after you are finished with the exam.
  - Allow 30 minutes at the start for you and your partner to read the questions and discuss the answers.
  - Take **NO MORE** than 1 hour to write up your response.
  - When finished return your answer to my office.
8. Again, **do not** discuss any aspect of this exam with anyone until the next semester.
9. Also **do not** put any of these problems in a 'dorm' or 'student' test file.
10. Given under the HMC Honor Code. In short...Do your own work and follow the above directions!!
11. If you have **ANY** questions about a particular problem and I am not available, make an educated guess as to what is being asked and let me know how you interpreted the question.
12. If you have **ANY** issues with the above directions, please email or see me.

## Problem 1

You are an IPv6 node which someday might be mobile. For the first time you just got plugged into a network that is your home or primary network.

1. What are the addresses (Unicast and Multicast) that you will have after completing your setup? Describe each one in detail. The bit values are not required (find if you know them); rather you need to provide the type and function of each address.
2. How do these addresses compare with the IPv4 addresses you would have had in an IPv4 world.

## Problem 2

You are an IPv4 node involved in a TCP connection through the cloud to some IPv4 server. Assuming a very congested network and a very busy server, describe:

1. What can happen to each packet that you send?
2. If a packet does not arrive at the server, how will you (the sender) know?
3. If a packet does not arrive at the server, what could have happened to that packet?
4. How do you respond to a 'lost' packet?
5. How do you know the server is busy and that you should slow down?

Answer, pg 1

Answer, pg 2

Answer, pg 3

Answer, pg 4