Instructions

Due: 10/4/19 at 11:59 PM

Read Chapter 3 in your textbook and the relevant lecture slides. Answer the questions below *individually*. The goal is to have you think about the problems, not cover every eventuality. Shoot for short, succinct answers that address the root of the question. Please, submit your **typed** answers as pdf/txt into the Dropbox on D2L into the "HW 3" folder.

1. [2 points] If all the links in the Internet were reliable, would the TCP reliable delivery service be redundant? Why or why not?

2. [2 points] If you are to develop an application that sends high quality images from one end to another, would you prefer TCP or UDP? Explain, why you have selected that protocol (TCP/UDP)? Put some strong arguments.

3. [2 points] In the `rdt` protocols described in class (and covered in textbook Section 3.4) what is the purpose of sequence numbers and of timers.

4. [4 points] UDP and TCP use 1s complement for their checksum. Suppose you have the following three 8-bit bytes: 01010011, 01100110, 01110111. What is the 1s complement of the sum of these 8-bit bytes? Why is it that UDP takes the 1s complement of the sum: that is, why not just use the sum? With the 1s complement scheme, how does the receiver detect errors? Is it possible that a 1-bit error will go undetected?

5. [5 points] List all possible Congestion Control mechanism considering the following image and explain all of them in detail.