HW 3 Chapter 3 – Part 1

R7. Suppose a process in Host C has a UDP socket with port number 6789. Suppose both Host A and Host B each send a UDP segment to Host C with destination port number 6789. Will both of these segments be directed to the same socket at Host C? If so, how will the process at Host C know that these two segments originated from two different hosts?

R8. Suppose that a Web server runs in Host C on port 80. Suppose this Web server uses persistent connections, and is currently receiving requests from two different Hosts, A and B. Are all of the requests being sent through the same socket at Host C? If they are being passed through different sockets, do both of the sockets have port 80? Discuss and explain.

R9. In our rdt protocols, why did we need to introduce sequence numbers?

R10. In our rdt protocols, why did we need to introduce timers?

R12. Visit the Go-Back-N interactive animation at the companion Web site (https://media.pearsoncmg.com/ph/esm/ecs_kurose_compnetwork_8/cw/content/interactiveanimations/go-back-n-protocol/index.html).

a) Have the source send five packets, and then pause the animation before any of the five packets reach the destination. Then kill the first packet and resume the animation. Describe what happens.

b) Repeat the experiment, but now let the first packet reach the destination and kill the first acknowledgment. Describe again what happens.

c) Finally, try sending six packets. What happens?

R13. Repeat R12, but now with the Selective Repeat interactive animation (https://media.pearsoncmg.com/ph/esm/ecs_kurose_compnetwork_8/cw/content/interactiveanimations/selective-repeat-protocol/index.html). How are Selective Repeat and Go-Back-N different?

P4.

Suppose you have the following 2 bytes: 01011100 and 01100101. What is the 1s complement of the sum of these 2 bytes?

Suppose you have the following 2 bytes: 11011010 and 01100101. What is the 1s complement of the sum of these 2 bytes?

For the bytes in part (a), give an example where one bit is flipped in each of the 2 bytes and yet the 1s complement doesn't change.

P15. Consider the cross-country example shown in Figure 3.17. How big would the window size have to be for the channel utilization to be greater than 98 percent? Suppose that the size of a packet is 1,500 bytes, including both header fields and data.

P23. Consider the GBN and SR protocols. Suppose the sequence number space is of size k. What is the largest allowable sender window that will avoid the occurrence of problems such as that in Figure 3.27 for each of these protocols?