Review Questions 10

Your Name:

Please print out this form (two-sided, if you can) and write your answers *legibly* in the spaces provided. If you can't write legibly, type.

1. In the RDT 2.1 protocol, why was it necessary to include sequence numbers in the data packet? Do the ACKs and NACKs need sequence numbers? Why or why not?

2. Suppose we want to send data reliably from Los Angeles to New York at 1 Gb/s, using a pipelined protocol. Assume that the maximum packet length is 10,000 bits and that the one way delay is 50 ms. What is the smallest window size that will make it possible to transfer data at this rate? How many distinct sequence numbers must the protocol support? You may assume that packets may be lost, but are never delivered out-of-order.

3. Consider the operation of RDT 3.0 between a sender *A* and a receiver *B*. Suppose *A* wants to send packets x and y to *B* and that x is lost, the ACK of y is lost and its first retransmission of y is lost. Draw a space-time diagram similar to those in K&R figure 3.16 that illustrates this scenario.