CMSC 417 Homework Three

Name: _____

Read 2.3, especially 2.3.2 consulting wikipedia's entry on HDLC for clarification. Read 2.4. Read 2.5, stop at "Implementation of Sliding Window," and resume at 2.5.3.

Due Thursday, Feb 28.

1. There are alternative schemes for helping little-endian machines send integers to big-endian machines that do not require a defined network byte order; that is, that do not require that little-endian machines convert when talking with other little-endian machines. (A) Describe one. (B) Why do you think it's not used for Internet Protocol header fields?

2. Simulate a CRC with generator $x^3 + x^2 + 1$ and message 11010010110: draw out the division as in Figure 2.20 on page 99. What is the remainder? Append the remainder to the message (as it would be on transmission), and check the message by seeing that the remainder is zero.

3. Compute a 2-D parity for the sequence 0x43 0x53. Circle four bits that, if all were flipped, would yield another valid sequence.

4. If all physical link layers have CRC's, which are really quite good at detecting error, why do TCP, UDP, and basic IP packets have their own checksums, which aren't very good at detecting two-bit errors?

5. What does the fourth parameter to recvfrom do? (As completely as you can describe, please.)

6. In terms of the relationship between MSL, the size of the sequence space, and maximum throughput: (a) As MSL increases, and sequence space is constant, what happens to maximum throughput? (b) As the sequence space increases in size (more sequence numbers) and MSL is constant, what happens to maximum possible throughput? (c) What is the danger that setting and enforcing an MSL avoids? (Remind me to talk about MSL.)