CSCI 373: *Computing Networking*
Midterm #1 -- open book section

The entire exam is to be turned in at 10:40 AM. Work the closed book section first and turn it in before you consult your books and notes to work on the open book section.

Problem 1. (20 points)

Thus far we've studied five LAN protocols: Ethernet, token ring, token bus, FDDI, and DQDB. All five of these protocols were designed under the assumption that all hosts in the network were good citizens, *i. e.*, the hosts obey the protocol.

For all five of the protocols, *briefly list* the mechanisms used to ensure that every host get a fair share of the available network bandwidth.

Suppose there are some bad companies out there that are willing to cheat in order to gain an advantage over their competitors. Choose three of the five protocols and describe how a unsavory manufacturer might cheat to gain a larger share of the network bandwidth.

Problem 2. (10 points)

In a DQDB network, can any host's request counter ever be greater than the number of hosts on the network?

Problem 3. (7 points)

What symbols are used to transmit the 12 data bits 000101011100 on an FDDI network?

Problem 4. (10 points)

If we tripled the speed (transmission rate) of the Ethernet and doubled the maximum cable size, how would we have to change the minimum and maximum frame size?

Problem 5. (10 points)

Is it possible for an Ethernet with only three hosts to have five collisions in a row without any successful transmissions?

Problem 6. (10 points)

On a token ring with only three hosts, is it possible for one host to have to wait through five successful priority 0 transmissions before it can transmit its own priority 0 transmission?