

EECS 122: Introduction to Communication Networks

Homework 5

(6 points)

Due: 1999-Oct-01-Fri (in class)

**Problem 1. (2 points)** During IP reassembly, fragments are spliced together if they all have the same source address, destination address, and identification fields. What is the maximum bit rate at which a particular source can send 576-byte datagrams to a particular destination without running the risk that fragments of different datagrams will be spliced together? Assume that a packet might exist in the network for up to 60 seconds after it is sent, but no longer.

**Problem 2. (2 points)** Even if the network is not congested, and the sending and receiving processes can write and read data arbitrarily fast, there is a limit to the throughput that TCP can provide. If the round-trip time is 100 ms, what is the maximum rate at which user data (not counting TCP and lower layer headers) can be transferred? (Hint: a proposed method to overcome this limit is the “TCP window scale option”.)

**Problem 3: chapter 4 problem 2. (2 points)**