ECE 156: Computer Network Architecture
Fall 2007

Homework 3

Assigned: November 4, 2007, Due: November 16, 2006 (start of class)

Instructions: You are required to work on the homework on your own. Please be legible and state all assumptions clearly. Show all work in order to receive partial credit.

Problem 1: [Virtual Circuits and Datagram Networks]
(a) Textbook, Page 404, problem 2;
(b) Textbook, Page 405, Problem 7. [5+5=10 points]

Problem 2: [Subnets]
(a) Textbook, Page 406, Problem 10;
(b) Textbook, Page 406, Problem 14. (To simplify the solution, assume that no datagrams have router interfaces as ultimate destinations.) [3+7=10 points]

Problem 3: [Fragmentation and NAT translation table]
(a) Textbook, Page 407, Problem 15;
(b) Textbook, Page 407, Problem 16;
(c) Textbook, Page 407, Problem 17. [4+4+2=10 points]

Problem 4: [Routing algorithms]
(a) Textbook, Page 408, Problem 23 (consider writing a program);
(b) Textbook, Page 409, Problem 24. (The wording of the problem is ambiguous. The problem refers to the number of iterations from when the algorithm is run for the first time, i.e., assuming the only information the nodes initially have is the cost to their nearest neighbors). [6+4=10]

Problem 5: [Link Layer]
(a) Textbook, Page 494, Problem 4;
(b) Textbook, Page 494, Problem 6;
(c) Textbook, Page 495, Problem 8. [2+4+4=10]