CPE 201 – Introduction to Computer Engineering

Fall 2007

Homework 4

Due date: November 6, 2007

1. [10 points] Problem 4-25 (page 178).

2. [10 points] Problem 4-28 (page 178).

3. [10 points] Problem 4-31 (page 179)

4. [10 points] Using a combination of four half or full adders (choose the combination as needed):

(a) [5 points] Design a four-bit incrementer circuit (a circuit that adds 1 to a four-bit binary number).

(b) [5 points] Design a four-bit decrementer circuit (a circuit that subtracts 1 from a four-bit binary number).

In both cases, numbers are represented in 2's complement form.

Hint: Consider how addition and subtraction are performed for numbers in 2's complement.

Extra credit:

1. [10 points] Problem 4-35 (only part (b)) (page 179).