**Homework Set #5**

CSCE2114 – Digital Design

Spring 2024

Due: Monday, Mar. 11, 2024 (by 11:59pm)

35 Points

**For the following problems you need to show details of conversions and calculations.**

1. (20 points) Perform the following calculations involving 8-bit 2’s compliment numbers. Indicate if overflow has occurred and how you know (show the carry values regardless). Convert the numbers to decimal and show the decimal calculations to check your answers.

a) 01010010

+00110110

b) 01010101

+11001001

c) 11001100

+10011110

d) 01111010

+01010011

1. (15 points) Perform the following calculations using 8-bit 2’s compliment binary addition.

Indicate if overflow has occurred and how you know (show the carry values).

a) 16

-20

b) -42

+21

c) 43

+23