**CSCI 360 Assignment 2: Binary, Hex and Absolute Addresses**

**60 points**

Print this document, carefully print, show your work and circle your answers. Scan your finished assignment and submit it on Blackboard. Or, if you prefer, you may also carefully type your work into this Word document, still showing your work by typing it in, and submit the finished Word document. Photographs of your finished assignment are ***not*** allowed.

1. Convert the following **unsigned binary** numbers to their decimal representations: (8 points)

  a. 110

b. 1101

c. 1101011

d. 0101

1. Convert the following **unsigned hexadecimal** numbers to their decimal representations: (8 points)

a. 14

b. C1

c. CE9

d. B19

1. Convert the following **unsigned decimal** numbers to both hex **and** binary representations: (8 points)

a. 14

b. 456

c. 48

d. 4095 

1. Do the following **unsigned binary** arithmetic giving the answer in binary: (8 points)

a. 10110 + 01101

b. 11001 + 00101

c. 10110 - 01111

d. 11111 - 01101

1. Do the following **unsigned hexadecimal** arithmetic giving the answer in hexadecimal: (8 points)

a. 829D + 1A82

b. E2C + A32

c. FA28 – 3254

d. E2C - AB1

1. Do the following arithmetic as if these were **five-bit signed representations** and indicate if overflow occurs and, if so, why. Note: Remember that you want to add. So, for signed subtraction, always convert the subtrahend (the number being subtracted) to its 2's complement and add it. Do this whether or not the subtrahend is negative OR positive and still check for overflow! (8 points)

a. 10110 + 01101

b. 11001 + 00101

c. 10110 - 01101

d. 11111 - 01011

1. Assume that

Register 0 contains 0007F144  
Register 1 contains 00000128  
Register 7 contains EC0735C8  
Register 9 contains 00000C22

If they are valid, calculate the absolute D(X,B) addresses for the representations below. If they are not valid, explain why. (12 points)

a. 56(,1)

b. 0(0,1,7)

c. 6(7,0)

d. 12(9)

e. 255(9,1)

f. 11(1,7)