CS 3101 Computer Organization

Homework

**Due Date: Wednesday, September 5, 2018 at beginning of class**

Type your answers in a word processor, print and submit hardcopy in class. Do not handwrite.

***Show your steps to receive partial credit.***

1. Perform the following base conversions.
   1. 101012 = 2110
   2. 6110 = 11100 2
   3. 56310 = 42235
   4. 75510 = 2F316
2. Represent the following decimal numbers in binary using the three 8-bit formats: signed magnitude, one's complement and two's complement formats.
   1. 113

Signed Magnitude: 01110001

One’s Complement: 01110001  
Two’s Complement: 01110001

* 1. −91

Signed Magnitude: 11011011

One’s Complement: 10100100  
Two’s Complement: 10100101

1. Show how each of the following decimal floating point values would be stored using IEEE-754 single precision. Show the result as a string of 0’s and 1’s, and indicate where are the sign bit, the exponent, and the significand.
   1. -11.25

1|10000010|01101000000000000000000

Sign Exponent Significand

* 1. 2.625

0|10000000|01010000000000000000000

Sign Exponent Significand