**COMPSCI 210 Assignment 1 Answers**

Name:

ID:

UPI:

1. Convert the following unsigned decimal number to an 8-bit unsigned binary number.

12310

1. Convert the following 8-bit unsigned binary number to an unsigned decimal number.

111110112

1. What is the range of a 5-bit unsigned binary number?
2. Convert the following decimal number to an 8-bit two’s complement binary number.

-1410

1. Convert the following 8-bit two’s complement binary number to a decimal number.

111111012

1. Assume the following numbers are two’s complement binary numbers. Signe extend the following numbers to make them into 8-bit two’s complement binary numbers.

01012 11102

1. Assume the following numbers are 8-bit two’s complement binary numbers. Calculate the result of each of the expressions. If there is an overflow during the operation, you need to indicate the overflow.

10000001 + 00010011

10000000 - 00000001

1. What is the result of the bit-wise AND operation of 00111100 and 01010101?
2. What is the result of the bit-wise OR operation of 00011100 and 01010101?
3. What is the result of 00001101 << 4?
4. What is the result of 10100000 >> 2?
5. What is the hexadecimal representation of 11110111000110012?
6. Convert 0x1AF6 to a binary number.