ICS Assignment 3

Name: _____ ID: _____

1. ( )In two's complement addition, if there is a final carry after the left most column addition, _____.

   (A) add it to the right most column (B) discard it
   (C) discord it (D) increase the bit length

2. ( )In two's complement representation with a 4−bit allocation, we get _____ when we add 1 to 7.

   (A) −8 (B) 8 (C) -7 (D) 1

3. ( )We use a bit pattern called a _____ to modify another bit pattern.

   (A) carry (B) float (C) mask (D) byte

4. ( )The _____ method of integer representation is the most common method for sorting integers in computer memory.

   (A) one's complement (B) sign-and-magnitude (C) unsigned integers
   (D) two's complement

5. ( )If we are adding two numbers, one of which has an exponent value of 7 and the other an exponent value of 9, we need to shift the decimal point of the smaller number _____.

   (A) two places to the left (B) two places to the right (C) one place to the right
   (D) one place to the left

6. What is the difference between simple and arithmetic shifts?

7. We need to set (force to 1) the four rightmost bits of a pattern. Show the mask and the operation.

8. What binary operation can be used to unset bits? What bit pattern should the mask have?

9. Show the result of the following operations:
   (a) NOT $(CF)_{16}$
   (b) $(FF)_{16}$ AND $(77)_8$ (Answer with the hexadecimal system)
   (c) $(99)_{16}$ OR $(01)_{16}$
   (d) $[(99)_{16}$ AND $(42)_{16}]$ OR $[(00)_{16}$ AND $(25)_{16}]$

10. What is the result of adding an integer to its two's complement?

11. Show the result of the following operations assuming that the numbers are stored in 16−bit two's complement representation. Show the result in hexadecimal notation.
   (a) $(712A)_{16} - (9E00)_{16}$
   (b) $(E12A)_{16} + (9E27)_{16}$