**Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Written Assignment 1**

**50 points**

1. (4 points) Convert the following binary numbers to

their decimal representations:

a. 10110 Answer:

b. 111001 Answer:

c. 10101 Answer:

d. 1000001 Answer:

2. (4 points) Convert the following hexadecimal

numbers to their decimal representations:

a. 4D Answer:

b. E2 Answer:

c. 23B Answer:

d. 14C Answer:

3. (8 points) Convert the following decimal numbers

to their hexadecimal and binary representations:

a. 27 Answer:

b. 783 Answer:

c. 291 Answer:

d. 2047 Answer:

4. (8 points) Do the binary arithmetic:

a. 10101 + 01110 Answer:

b. 11001 + 10011 Answer:

c. 01110 - 00101 Answer:

d. 11001 - 01011 Answer:

5. (8 points) Do the hexadecimal arithmetic:

a. 14B3 + 9A2C Answer:

b. BA4 + 3F2 Answer:

c. 95EC - 3FA1 Answer:

d. F65 - 87C Answer:

6. (18 points) The integers in the following

computations are indicated in hexadecimal, but

represent 32-bit two's complement binary numbers.

Perform the operations and indicate if overflow

occurs and why. (If overflow occurs the result is

invalid, but show it anyway.)

a. A0B1C2D3 b. 87633342

+ D3F50617 - 8425442F

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c. 25009715 d. 710BC450

+ 5297742F + 803009B5

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e. 7000000F f. 79AB00CD

- 80000012 - 6013220F

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7. (4 points) Assume that:

\* Register 0 contains X'F002540E'

\* Register 1 contains X'000000C5'

\* Register 7 contains X'000253F8'

Here are some expressions which may be D(X,B)

addresses. If they are valid, calculate the values

(in hexadecimal), and if they are not valid, explain

why not:

a. 84(0,1) Answer:

b. 0(0,7,1) Answer:

c. 106(7,0) Answer:

d. 513(1,7) Answer: