CMPS-224 Quiz-6 name _____
Clearly indicate your answers please.

1. Why does the least-significant digit of a binary number indicate if the number is odd or even?

A. Because it represents the 2's place.
B..Only even numbers have zero as the LSB.
C. No odd numbers have one as the LSB.
D. Because the LSB will hold the value of the number mod 1.

2. Perform the subtraction operation on the following two's complement numbers below. Show your final answer as a decimal number. Circle it.

```
  01010000    80
- 11111111  - -1
----------   ---
           81
```

3. Convert the base 5 number 2004 to decimal.

2x125 + 0x25 + 0x5 + 4 = 254

4. Sign extend the 2 digit hex number 0x88 to a 4 digit hex number.
1111 1111 1000 1000
0xFF88

5. The following **sub** instruction is located at address **0x00012344**.
What are the two possible values for the contents of the Program Counter (PC) register after the branch instruction has executed?
Give two values in 0x format. Circle the answers.

```
loop:  addi $t4, $t4, -8
       sub  $t2, $t2, $t0
       bne  $t4, $t2, loop
```

0x00012340
0x0001234C

6. This value is currently in register $t1: 11111111111111111111111111100100
After this shift-right-arithmetic instruction **sra $a0, $t1, 2**
What will be in $a0? Show answer in hex (0x) format.

1111 1111 1111 1111 1111 1111 1111 1001
0xFFFFFFF9

7. This instruction **lb $t2, 0($t1)** loads a byte of memory from the address in $t1 into register $t2. If the value at the address is decimal 43, an Ascii plus sign, what is the value in $t2 after the instruction finishes?

A..0x0000002B
B. 0xFFFFFF2B

C. 0x11111143
D. 0x2B000000