10/10

CSCI-21 Quiz #4 Name Ismael Cortez

Please use pencil and erase mistakes. Show your work and put a box around numeric answers. 10 points.

Convert the following 8-bit two's complement binary numbers to decimal (1 each):

11100101 $-128 + 64 + 32 + 4 + 1$ $-64 + 32 + 4 + 1$ $-32 + 4 + 1$ **−27** ✓

00011011 $16 + 8 + 3 = 27$

11000001 $-128 + 64 + 1 = -64 + 1$ **−63** ✓

3

00111101 $32 + 16 + 8 + 4 + 1$ $32 + 29 = 61$ **61** ✓

Sign-extend the following 8-bit hexadecimal numbers to 32 bits. Write them in hexadecimal (1 each).

0x85 8bit **0x FFFFFF85** ✓

2

0x73 8bit **0x00000073** ✓

Write a complete MIPS program that loads the value 35 (decimal) into register $t0, then converts it to −35 in register $t1 without using the neg macro, subtracting from zero or adding a negative value. Convert directly by using the 2's complement sign reversal algorithm. This program is fewer than 5 instructions or macros. (5 points)

```
.text          .globl main?   ok
main:
    ori  $t0, $0, 35.      # $t0 = 0010 0011
    nor  $t0, $t0, $t0.    # $t0 = 1111.... 1101 1100
    addiu $t1, $t0, 1      # $t1 = 0x FFFFFFDD
```

Please! ok