CSCE 212: Quiz 2 **Spring 2009**

Name (please print):_____ **Total points: ___/40**

Instructions
This is a CLOSED BOOK and CLOSED NOTES quiz. However, you may use calculators, scratch paper, and the green MIPS reference card from your textbook. Ask the instructor if you have any questions. Good luck!

1. (10 points) Assume that there's a *class* of pseudo-instructions called **load-and-increment** (having mnemonics **LWI**, **LHI**, **LHUI**, **LBI**, and **LBUI**) that performs a load and automatically increments the base register value by the appropriate amount. How would the following be translated into machine instructions?

```
LHI  $s2, 14($s3)
```

```
lh $s2,14($s3)
addi $s3,$s3,2
```

2. (10 points) Assemble the following assembly language instruction into a machine language instruction using hexadecimal representation:

```
SLTU $2, $3, $12
```

opcode	rs	rt	rd	shamt	func
0000 00	00 011	0 1100	0001 0	000 00	10 1011

006C102B

3. (10 points) Convert the following machine language instruction, represented as a hexadecimal value, into an assembly language instruction:

```
28620016
```

opcode	rs	rt	immediate
0010 10	00 011	0 0010	$16_{16} = 22_{10}$

```
slti $2,$3,22
```

4. (10 points) Assume I want read a sequence of 8 words from the console. Assuming system call 5 corresponds to **read_int**, identify any problems with the following code.

```
        li $s0,0
        li $s1,32
        li $v0,5
loop:   syscall
        addi $s0,$0,4
        bne $s0,$s1,loop
```

$s0