

CMPUT 229 (A1) - Quiz # 1 - Fall 2013

Name: **Solution**

Question 1 (100 points): Explain, using only words, what the following sequence of MIPS assembly does.

```
addi    $s0, $s0, 1
sll     $s0, $s0, 31
sra     $s0, $s0, 15
srl     $s0, $s0, 8
nor     $s0, $s0, $s0
and     $s1, $s0, $s1
```

There are two cases:

Case 1: If the number that was stored in **\$s0** when the sequence starts was even (bit 0 of **\$s0** was zero, then:

This code forces the bits 8-23 of **\$s1** to become zero and leaves all other bits of **\$s1** unchanged. It also makes the bit 8-23 of **\$s0** equal 0 and all other bits of **\$s0** equal 1.

Case 2: If the number that was stored in **\$s0** when the sequence starts was odd (bit 1 of **\$s0** was one, then:

This code makes **\$s0** equal 0xFFFF FFFF and does not change **\$s1**.