COE 301/ICS 233, Term 171

Computer Architecture & Assembly Language
Quiz# 2

Date: Tuesday, Oct. 31, 2017

Q1. Determine the output produced by the following program given that the program inputs are 7 and 4. Needed syscall services are given below.

Service	$v0	Arguments / Result
Print Integer	1	$a0 = integer value to print
Read Integer	5	$v0 = integer read
Exit Program	10	

```
        .text
        .globl main
main:
        li $v0, 5
        syscall
        move $t0, $v0
        li $v0, 5
        syscall
        move $a1, $v0
        move $a0, $t0
        jal Proc1
        move $a0, $v0
        li $v0, 1
        syscall
        li $v0, 10
        syscall
Proc1:
        bne $a0, $a1, Skip
        move $v0, $a0
        jr $ra
Skip:
        addi $sp, $sp, -8
        sw $a0, ($sp)
        sw $ra, 4($sp)
        addi $a0, $a0, -1
        jal Proc1
        lw $t0, ($sp)
```

```
        lw $ra, 4($sp)
        addi $sp, $sp, 8
        add $v0, $v0, $t0
        jr $ra
```

Q2. Assuming that functions F and G receive two integer arguments in $a0 and $a1 and return their results in $v0, implement the function F given below saving needed registers on the stack. Save changed registers according to the assumed programming convention:

```
int F(int a, int b) {
    return  G(2a,b)+G(a,2b);
}
```