Name: Id#

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);

}