

Name:

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ICS 233, Term 063

Computer Architecture & Assembly Language

Quiz# 2

Date: Monday, July 30, 2007

Q1. Assume that you have a two-dimensional array of integers, **ITArray**, and that you are required to write a procedure, **TArraySum**, to compute the sum of all the integers in the array and return the result in \$v0. Assume that the address of the array, its number of rows and its number of columns will be passed in registers \$a0, \$a1, and \$a2, respectively. Implement the following algorithm for **TArraySum**:

```
Sum=0
For (i=0; i<#rows; i++){
    Sum = Sum + RowSum(i)
}
```

RowSum is to be implemented as another procedure that receives the address of the array, the row number to be added and its number of columns in registers \$a0, \$a1, and \$a2, respectively, and will return the sum of the integers in a row in \$v0. Write a program to use the procedure **TArraySum** to compute the sum of the array given below and then display it:

```
ITArray: .word 1, 2, 3, 4, 5
         .word 6, 7, 8, 9, 10
         .word 11, 12, 13, 14, 15
```

Note that the sum displayed in this case should be 120.