Name: Id#

COE 205, Term 101

Computer Organization & Assembly Programming

Quiz#4 Solution

Date: Monday, Dec. 6, 2010

# 

# **(Q1)** Fill the blank in each of the following:

## Assume that ESP=0000022EH and EAX=1F2E3D4CH. Assume that the address of MPROC is 0030FEA3. After executing the instruction sequence {PUSH EAX, CALL MPROC}, the content of ESP=ESP-8=0000022EH-8=00000226H.

## Assume that AX=4321H and BX=5678H. After executing the following sequence of instructions, the content of EAX=43215678.

PUSH AX

PUSH BX

POP EAX

## Assume that ESP=00000100H. After executing the instruction RET 4, the content of ESP=ESP+8=00000100H+8=00000108H.

# **Q2.** Write a procedure that computes and displays the sum of an array of integers. Assume that the array address and number of elements in the array are passed as parameters in the stack. The procedure should preserve the content of all registers used. Then, call the procedure to display the sum of the array given below:

Array1 DWORD 1, 2, 3, 4, 5

.code

main PROC

push offset Array1

push lengthof Array1

call ArraySum

exit

main ENDP

ArraySum PROC

push ebp ; save ebp

mov ebp, esp

push ecx ; save registers

push esi

push eax

mov ecx, [ebp+8] ; get array length from stack

mov esi, [ebp+12] ; get array address from stack

mov eax,0 ; set the sum to zero

L1:

add eax, [esi] ; add each integer to sum

add esi, 4 ; point to next integer

loop L1 ; repeat for array size

call WriteInt ; display sum

pop eax ; restore registers

pop esi

pop ecx

pop ebp

ret 8 ; return and free parameters

ArraySum ENDP