

Name: KEY

Id#

COE 205, Term 081
Computer Organization & Assembly Programming
Quiz# 5

Date: Tuesday, Jan. 5, 2010

- Q1.** Write a macro, **DISPSUM**, that receives three constant parameters representing the address of an array, the number of elements in the array and the type of elements in the array. The macro should compute the sum of the elements in the array and display the sum in a new line. The macro should preserve all the used registers. Then, use the macro to display the sum of the following three arrays:

Array1 Byte 1, 2, 3, 4, 5

Array2 Word 6, 7, 8, 9

Array3 DWORD 10, 11, 12, 13, 14, 15

```
DISPSUM MACRO Array, len, t
LOCAL NEXT, SKIP1, SKIP2, SKIP3
    PUSH EAX
    PUSH EBX
    PUSH ECX
    PUSH ESI
    PUSH EDI
    MOV ESI, Array
    MOV ECX, len
    XOR EAX, EAX
    XOR EDI, EDI
    MOV BL, t
NEXT:
    CMP BL, 1
    JA SKIP1
    ADD AL, [ESI+EDI]
    JMP SKIP3
SKIP1:
    CMP BL, 2
    JA SKIP2
    ADD AX, [ESI+EDI*2]
    JMP SKIP3
SKIP2:
    ADD EAX, [ESI+EDI*4]
SKIP3:
```

```
INC EDI
LOOP NEXT
CALL Crlf
CALL Writeint
POP EDI
POP ESI
POP ECX
POP EBX
POP EAX
ENDM
```

```
DISPSUM offset Array1, lengthof Array1, type Array1
DISPSUM offset Array2, lengthof Array2, type Array2
DISPSUM offset Array3, lengthof Array3, type Array3
```

Q2. Write a macro, SREG, that can be used to save any number of registers passed to it. For example, to save the registers EAX, EBX and ECX, the macro is invoked with the statement:

```
SREG < EAX, EBX, ECI>
```

```
SREG MACRO REGS
    IRP D, <REGS>
        PUSH D
    ENDM
ENDM
```