

Name: KEY

Id#

COE 205, Term 091
Computer Organization & Assembly Programming
Quiz# 3

Date: Saturday, Dec. 12, 2009

Q1. Fill the blank in each of the following:

1. Assume that the instruction `JMP NEXT` is at offset address `0000005EH` in the code segment, its size is 2 bytes, and the label `NEXT` is at offset `00000020H`. Then, the address stored in the assembled instruction for the label `NEXT` (assuming pc-relative addressing), is $NEXT - EIP = 00000020 - (0000005E + 2) = 00000020 - 00000060 = C0$.

2. Assuming that `EBX=0000000C` and `ESI=00000004`, the address of the source operand in this instruction `MOV AL, [EBX+ESI*4-1]` is $0000000C + 00000004 * 4 - 1 = 0000001B$ and its addressing mode is based-indexed addressing mode.

3. Executing the two instructions `{NEG EBX; ADD EAX, EBX}` produces the same result in `EAX` as the instruction `SUB EAX, EBX`.

4. The addressing mode of the source operand in the instruction `MOV EAX, offset ARRAY-1` is immediate addressing mode.

5. The addressing mode of the source operand in the instruction `MOV EAX, ARRAY+1` is direct addressing mode.
6. The addressing mode of the source operand in the instruction `MOV EAX, [EBX]` is register indirect addressing mode.
7. After executing the code shown below, the content of register EAX will be 0000000E.

```
        MOV ECX, 5
        MOV EAX, 0
NEXT:   ADD EAX, ECX
        LOOP NEXT
```

8. Considering the code below, the content of the following registers after executing the code will be `EAX=0000000E` and `EBX=0000000A`.

```
.DATA
ARRAY    DWORD 1, 2, 3, 4, 5
          DWORD 6, 7, 8, 9, 10
          DWORD 11, 12, 13, 14, 15
          DWORD 16, 17, 18, 19, 20
RSIZE EQU  SIZEOF ARRAY
.CODE
MOV ESI, 2*RSIZE
MOV EDI, 3
MOV EAX, ARRAY[ESI+EDI*TYPE ARRAY]
MOV EBX, ARRAY[ESI-4]
```