UNIVERSITY OF JORDAN
FACULTY OF ENGINEERING AND TECHNOLOGY
DEPARTMENT OF COMPUTER ENGINEERING
Assembly Language and microprocessor
Quiz No: II A

Name: **Student.ID:**
Section: **Date: November 5, 2008**

1- Fill in the spaces

- Each statement in an assembly language program consists of …four……. parts or fields.
- All labels must begin with a letter or one of the following special characters: @, $, - , or…?.
- **Tiny** program always assembled as a .COM …. program
- The stack segment grows downward while the Data segment grows upward
- The MOV AL,[EBX + ECX] is used to address a …Byte (or 8 bits)…… of data

2 - Which of the MOV instruction are valid and which are invalid put "V" for valid and "I" for invalid one.

(I) MOV BX, AH
(V) MOV BL,DL
(I) MOV ES,DS
(V) MOV DS,AX
(V) MOV [1234H] ,AX

3- What is the value stored in both CX and BX after the execution of the following set of instructions

```
MOV CX, 1234H
MOV BX , CX
MOV [BX],CX
```

BX = 1234H	CX = 1234H

4- What is the length in bytes of the structure named Employee

```
Employee STRUCT
        IdNum BYTE "00000000"
        LastName BYTE 30 DUP(0)
        Years WORD 0
        SalaryHistory DWORD 0,0,0
Employee ENDS
```

length = 8+30+2+3X4 = 52 Bytes

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1 - Which of the MOV instruction are valid and which are invalid put "V" for valid and "I" for invalid

(I) MOV 1324H,AX
(I) MOV AX, A8FH
(I) MOV AX, 'AB'
(V) MOV SP, BP
(I) MOV BL, AX

2- What is the value stored in both CX and BX after the execution of the following set of instructions

```
MOV CX,10
again:
        MOV BX,CX
Loop again
```

BX = 0	CX = 0

3 - Show which JMP instruction assembles (short, near, or far) if the JMP THERE instruction is stored in memory address 10000H and the address of THERE is:

(a) 10030H { Short less than 128}

(b) 11020H { Near > 128 and < 32k}

(c) 0FFFEH { Short less than 127}

(d) 31000H { Far > 32K }

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Quiz No: II C

Name: **Student.ID:**
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1- What is the length in bytes of the structure Employee

```
Employee STRUCT
        IdNum BYTE "000000"
        LastName BYTE 20 DUP(?)
        Years WORD 0
        SalaryHistory DWORD 0,0,0
Employee ENDS
```

length = 6+20+2+3x4 = 40 bytes

2- Suppose that DS = 0200H , BX = 0300H , and DI = 400H. Determine the memory address accessed by each of the following instructions, assuming real mode operation:

(a) MOV AL,[1234H] Address = 0200 X 10H +1234 = 3234H

(b) MOV EAX,[BX] Address = 0200X10H+0300H = 2300H

© MOV [DI] , AL Address = 0200x 10H + 400 H = 2400H

3 - Which of the MOV instruction are valid and which are invalid put "V" for valid and "I" for invalid one

(I) MOV ES , DS
(I) MOV AX , '5634'
(V) MOV DS , AX
(V) MOV [1234H] , AX
(I) MOV BX , AH

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1- What will be the stored values in registers AX,BX,CX after the execution of the following program

AX = 1000H **BX = 2000H** **CX = 3000H**

```
.MODEL TINY             ;select tiny model
.CODE                   ;start code segment
.STARTUP                ;start program
MOV   AX,2000H          ;load test data
MOV   BX,3000H
MOV   CX,1000H

PUSH  AX
PUSH  BX
PUSH  CX

POP   AX
POP   CX
POP   BX
.exit                   ;exit to DOS
```

2 - Suppose that DS = 1000H , SS = 2000H , BP = 1000H and DI = 0100H. Determine the memory address accessed by each of the following instructions, assuming real mode operation:

(a) MOV AL,[BP+DI] **Address = 2000X10H + 1000H +0100H = 21100H**

(b) MOV CX,[DI] **Address = 1000 X 10H +0100H = 10100H**

© PUSH AX **Address = 2000x10H + 1000h = 21000H**

3 - put √ in front of correct statement and × in front of wrong one

(√) Displacement is a signed value, so it can be both positive or negative.
(X) After MOV instruction both the contents of the source and destination registers are changed
(√) in real mode, a *far* jump accesses any location within the first 1M byte by changing both CS and IP.
(X) Small model program always assembled as a (.COM) program
(X) PUSH and POP store or retrieve bytes of data in a memory.