Name: M. Ammar Ali
Section: BS(DS) - 3B
Roll n.o 21L-5659

C.O.A.L

Assignment #1

Question N.o 1

a) mov [02], [22]

sol:

```
mov bx, [22]
mov [02], bx
```

b) mov [wordvar], 20

sol:

```
mov byte [wordvar], 20
```

c) mov bx, dl

sol:

```
mov bl, dl
```

d) mov ax, [si+di+100]

sol:

```
mov bx, si
mov ax, [bx+di+100]
```

Question N.o 2

```
[org 0x100]
mov al, 0
mov bl, 0
l1: mov al, [arr + bl]
    add bl, 1
    dec [size], 1
    cmp [max], ax
    jbe Maximum
    jnbe Not Maximum
Not Maximum: jmp l1
Maximum: mov [max], ax
         cmp [size], 1
         jne l1
mov ax, 0x4c00
int 21
arr: db -3, 5, -10, 4, 6, -7, 1 siz: db 07 max: db 0
```

Question N.o 3

a) 1000 : 0436

P.A = 1000 x 10h + 0436

= 1E206

b)

1234 : 7920

P.A = 1234 x 10h + 7920

= 19C60

c)

74FO : 2123

= 74FO x 10h + 2123

= 77023

d)

0000 : 6727

= 0000 x 10h + 6727

= 06727

e)

FFFF : 4336

= FFFFo + 4336

= 04326 physical memory wraparound

f) 1080 : 0100

= 10800 + 0100

= 10900

g) AB01 : FFFF

= AB010 + FFFF

= BB00F

Question N.o 4

a) 1000

= 1000x10h + 00000

= 10000

= 1000x10h + FFFF

= 1FFFF

b) 0FFF

= 0FFF0 + 00000

= 0FFF0

= 0FFF0 + 0FFFF

= 1FFEF

c) 1002

= 10020 + 00000

= 00020

= 10020 + 0FFFF

= 20001F

d) 0001

= 00010 + 00000

= 00010

= 00010 + 0FFFF

= 1000F

d) 0001

= 00010 + 00000

= 00010

= 00010 + 0FFFF

= 1000F

e) E000

= E0000 + 00000

= E0000

= E0000 + 0FFFF

= EFFFF

Question N.o 5

a) mov dx, [bx + 12]

effective address = [bx + 12]

= 0100 + C

= 010C

b) mov dx, [bx + num1]

= [bx + num1]

= 0100 + 1001

= 1101

c) mov dx, [num1 + bx]

= [num1 + bx]

= 0100 + 1001

= 1101

d) mov ax, [bx+si]

= [bx+si]

= 0100 + 0100

= 0200

Question No. 6

1) Erorr : invalid effective address

2) Erroar : invalid effective address

3) bx+10

= 0100 + 10

= 0110

4) bx - 10

= 0100 - 10

= 00F0

5) bx + sp

= 0100 + FFFF

= 00FF wrap around

6) bx + di

= 0100 + 0001

= 0101

Question No. 7

1) CS:IP = OFF29

IP = CS:IP - CS

= OFF29 - OFE20

= 0109

2) At IP = 0109 Ax register will be Ax = 5

Question N.o 8

a) A [1700]

P.A = offset + Segment × 10h

= 0017 + OFE20

= OFE37

b) A1 [120B]

P.A = offset + Segment × 10h

= 0B12 + OFE20

= 10932

Question N.o 9

```
[org 0x100]
mov cl, 64
mov bx, 1
l1: test bx, [multiplier]
    je l2
    mov ax, [multiplicand]
    add [answer], dx
mov ax, [multiplicand+2]
    adc [answer+2], ax
l2:
    shl word [multiplicand], 1
    rcl word [multiplicand+2], 1
    rcl word [multiplicand+4], 1
```

```
rcl word [multiplicand+67], 1
shl bx, 1
sub cl, 1
jne l1
mov dx, 0x4c00
int 21
multiplicand: dq 18654178
multiplier: dq 21638197
result: dq 0
```

Question 10

1) The total size will be 68 bytes

2) The array will be

8, 0, 2, 10, 7, 5, 3