

Day: _____

Date: ____/____/20____

Name: Muhammad Larab Akhter

Section: BCS-3B

Roll no: 21L-5294

Course: COAL

Assignment : 1

Q1. a. add ax, bx

AX = 0x334A

BX = 0x45F1

334A

CX = 0x8934

+ 45F1

ZF = 0 SF = 0

793B

CF = 0 OF = 0

b. add cx, bx

8934

ZF = 0 SF = 1

+ 45F1

CF = 0 OF = 0

CF 25

c. 45F1^{E16}

- 6

ZF = 0 SF = 0

45EB

CF = 0 OF = 0

Q2

a. 0xb900

big Endian format

lower address: b9

Higher address: 00

①

b. 0x4567

lower address: 45

Higher address: 67

c. 0xAA99

lower address: AA

Higher address: 99

Question 3

a. FFFF:4312

FFFF0

+ 4312

1104302

104302

b. 1DEF:0001

1DEF0

+ 0001

1DEF1

c. 14FF:1111

14FF0

+ 1111

161011

Q4. [org 0x0100]

mov ax, 10

mov bx, 5

mov cx, ax

mov ax, 0

l1: add ax, cx

sub bx, 1

cmp bx, 0

jne l1

mov ax, 0x4c00

int 0x21

Q5 a) bp-di

invalid: base register and index register

addition possible only

b) bp+si

0x220 + 0x0110

0220

+ 0110

0x0330

c) $bx - 0x12$

$$0034$$

$$- 0012$$

$$\boxed{0x0022}$$

d) $bx + bp$

invalid: cannot have two base register in one memory access.

e) $bx + ip$

invalid

no memory access can be performed through instruction pointer.

f) $bx + di$

$$0x0034$$

$$+ 0x1101$$

$$\boxed{0x1135}$$

Q 6. (a) $bx + si$

$$22AA$$

$$+ FEEF$$

$$12199$$

$$12199$$

$$+ 45820$$

$$\underline{479B9}$$

wraparound: segment wraparound.

$$(b) \quad 0x4700 + 0x4247 + 0x10.$$

$$= \quad 4700$$

$$\quad 4247$$

$$\quad + 0010$$

$$0x8957$$

$$\cancel{0x4588}$$

$$+ 0x45820$$

$$4E177$$

Physical address wraparound.

Q7. (a) `mov ip, bx`

- `ip` cannot be overwritten.
- `mov ax, bx`.

(b) `mov byte bx, [ip]`

- `ip` cannot be manually accessed.

(c) `mov si, al`

- Size mismatch.

- `mov bl, al`.

(d) `mov ax, [bx+bp+100]`

- `bx + bp` cannot be performed both are base registers.

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

Question 8

$$OF \rightarrow 0$$

$$SF \rightarrow 1$$

$$CF \rightarrow 0$$

$$PF \rightarrow 0$$

Question 9

There is no logical error in the code of
Question 8.

Q10.

[org 0x0100]

mov al, [num1]

mov bl, [num1+1]

mov [num1], bl

mov [num1+1], al

mov al, [num1+2]

mov bl, [num1+3]

mov [num1+2], bl

mov [num1+3], al

mov ax, 0x4c00

int 0x21

num1: db 1, 2, 3, 4.

Q11. [org 0x0100]

~~mov bx, 0;~~

~~mov [min], bx~~

~~li: mov~~

mov bx, 0;

mov ax, [array1]

mov [min], ax

li :

add bx, 2

mov ax, [array1+bx]

cmp ax, [min]

lg l2

cmp bx, 10

jne l1

je end

l2:

mov [min], ax

cmp bx, 10

jne l1

end:

mov ax, 0x4C00

int 0x21

array1: dw 5, 3, 8, 2, 5

min: dw 0