

### MIT Assignment-03

Jeetu Mehra

U24AI032

**Question 1 : Write instruction to copy data into register B from memory location 0008H specified by HL pair.**

**Output:**

Registers		Flag		Load me at
A	00	S	0	
BC	32 00	Z	0	
DE	00 00	AC	0	
HL	00 00	P	0	
PSW	00 00	C	0	
PC	42 08			
SP	FF FF			
Int-Reg	00			

**Decimal - Hex Conversion**

Decimal	Hex
0	0

**I/O Ports**

8	-	+	00
---	---	---	----

**Memory**

8	-	+	00
---	---	---	----

```
Load me at
1
2 ;<Program title>
3
4 jmp start
5
6 ;data
7
8
9 ;code
10 start: nop
11 MVI M, 32H
12 MOV B, M
13
14 hlt|
```

**Question 2:** Write instruction to copy data from register B into memory location 0008H specified by HL pair.

**Output:**

Registers		Flag	Load me at
A	00	S 0	
BC	32 00	Z 0	
DE	00 00	AC 0	
HL	00 00	P 0	
PSW	00 00	C 0	
PC	42 06		
SP	FF FF		
Int-Reg	00		

**Decimal - Hex Conversion**

Decimal	Hex
0	0

⇒ To Hex      ⇢ To Dec

**I/O Ports**

8	-	+	00
---	---	---	----

⟳ Update Port Value

**Memory**

8	-	+	50
---	---	---	----

⟳ Update Memory

```
1 ;<Program title>
2
3
4 jmp start
5
6 ;data
7
8
9 ;code
10 start: nop
11
12 MOV M, B
13
14
15 hlt|
```

**Question 3:** Write instruction to add contents of register B to the contents of A and show results at I/O port address 0002H.

**Output:**

Registers			Flag
A	32		S 0
BC	32	00	Z 0
DE	00	00	AC 0
HL	00	00	P 0
PSW	00	00	C 0
PC	42	08	
SP	FF	FF	
Int-Reg	00		

Load me at

```
1 ;<Program title>
2
3
4 jmp start
5
6 ;data
7
8
9 ;code
10 start: nop
11 ADD B
12 OUT 02H
13
14
15 hlt|
```

**Decimal - Hex Conversion**

Decimal	Hex
0	0

To Hex     To Dec

**I/O Ports**

2	-	+	50
---	---	---	----

Update Port Value

**Memory**

0	-	+	50
---	---	---	----

Update Memory

**Question 4 : Write instruction to add 8-bit data to the contents of A and show results at memory address 003FH.**

003FH.

**Output:**

Registers		Flag	
A	3A	S	0
BC	32 00	Z	0
DE	00 00	AC	0
HL	00 00	P	1
PSW	00 00	C	0
PC	42 0A		
SP	FF FF		
Int-Reg	00		

Load me at

```
1 ;<Program title>
2
3
4 jmp start
5
6 ;data
7
8
9 ;code
10 start: nop
11 ADI 08H
12 STA 003FH
13
14
15
16 hlt|
```

**Decimal - Hex Conversion**

Decimal	Hex
0	0

To Hex     To Dec

**I/O Ports**

3	-	+	50
---	---	---	----

Update Port Value

**Memory**

0	-	+	32
---	---	---	----

Update Memory

**Question 5 : Write instruction to add contents of memory address specified by HL pair to the contents of A**

**Output:**

**Registers**

A	6C
BC	32 00
DE	00 00
HL	00 00
PSW	00 00
PC	42 06
SP	FF FF
Int-Reg	00

**Flag**

S	0
Z	0
AC	0
P	1
C	0

Load me at

**Decimal - Hex Conversion**

Decimal	Hex
0	0

To Hex     To Dec

**I/O Ports**

3	-	+	32
---	---	---	----

Update Port Value

**Memory**

3	-	+	50
---	---	---	----

Update Memory

**Question 6 : Write instruction to subtract contents of register B from the contents of A and show results at**

**I/O port address 0002H.**

**Output:**

Registers		Flag	
A	3A	S	0
BC	32 00	Z	0
DE	00 00	AC	0
HL	00 00	P	1
PSW	00 00	C	0
PC	42 08		
SP	FF FF		
Int-Reg	00		

Load me at

```
1 ;<Program title>
2 jmp start
3
4 ;data
5
6 ;code
7
8
9 start: nop
10 SUB B
11 OUT 02H
12
13
14
15 hlt|
```

**Decimal - Hex Conversion**

Decimal	Hex
0	0

To Hex  To Dec

**I/O Ports**

3	-	+	32
---	---	---	----

Update Port Value

**Memory**

2	-	+	0
---	---	---	---

Update Memory

**Question 7 : Write instruction to subtract 8-bit data from the contents of A and show results at memory address 003FH.**

**Output:**

Registers		Flag	
A	32	S	0
BC	32 00	Z	0
DE	00 00	AC	0
HL	00 00	P	0
PSW	00 00	C	0
PC	42 0A		
SP	FF FF		
Int-Reg	00		

**Decimal - Hex Conversion**

Decimal	Hex
0	0

⇒ To Hex      ⇢ To Dec

**I/O Ports**

3	-	+	32
---	---	---	----

⟳ Update Port Value

**Memory**

3	-	+	0
---	---	---	---

⟳ Update Memory

Load me at

```
1 ;<Program title>
2
3
4 jmp start
5
6 ;data
7
8
9 ;code
10 start: nop
11 SUI 08H
12 STA 003FH
13
14
15 hlt|
```

**Question 8 : Write instruction to subtract contents of memory address specified by HL pair from the contents of A**

**Output:**

Registers		Flag
A	00	S 0
BC	32 00	Z 1
DE	00 00	AC 0
HL	00 00	P 1
PSW	00 00	C 0
PC	42 06	
SP	FF FF	
Int-Reg	00	

Load me at

```
1 ;<Program title>
2 jmp start
3
4 ;data
5
6 ;code
7
8 start: nop
9 SUB M
10
11
12
13
14 hlt|
```

**Decimal - Hex Conversion**

Decimal	Hex
0	0

To Hex     To Dec

**I/O Ports**

3	-	+	32
---	---	---	----

Update Port Value

**Memory**

2	-	+	0
---	---	---	---

Update Memory

**Question 9 : Write instruction to copy data (results)from accumulator to memory location 0008H.(STA)**

**Output:**

Registers		Flag
A	32	S 0
BC	32 00	Z 1
DE	00 00	AC 0
HL	00 00	P 1
PSW	00 00	C 0
PC	42 0A	
SP	FF FF	
Int-Reg	00	

Load me at

```
1 ;<Program title>
2
3
4 jmp start
5
6 ;data
7
8
9 ;code
10 start: nop
11 mvi A, 32H
12 STA 0008H
13
14
15
16 hlt
```

**Decimal - Hex Conversion**

Decimal	Hex
0	0

To Hex  To Dec

**I/O Ports**

3	-	+	32
---	---	---	----

Update Port Value

**Memory**

8	-	+	32
---	---	---	----

Update Memory

**Question 10 : A. load data 93H to memory location 003E H.**

**B. load data B7H to memory location 0005H.**

**C. Add both data and show results at I/O port 007FH.**

**Output:**

**Registers**

A	4A
BC	93 00
DE	00 00
HL	00 00
PSW	00 00
PC	42 19
SP	FF FF
Int-Reg	00

**Flag**

S	0
Z	0
AC	0
P	0
C	1

**Load me at**

**Decimal - Hex Conversion**

Decimal	Hex
0	0

To Hex     To Dec

**I/O Ports**

3	-	+	32
---	---	---	----

Update Port Value

**Memory**

8	-	+	32
---	---	---	----

Update Memory

```
1 ;<Program title>
2
3
4 jmp start
5
6 ;data
7
8
9 ;code
10 start: nop
11 MVI A, 093H
12 STA 003EH
13
14 MVI A, 0B7H
15 STA 0005H
16
17 LDA 003EH
18 MOV B, A
19 LDA 0005H
20 ADD B
21 OUT 07FH
22
23 hlt
```

**Question 11:** A. load data 4FH to memory location 7F H.

B. load data 78H to I/O port 0005H.

C. Add both data and show results at I/O port 007FH.

### Output:

**Registers**

A	C7	
BC	4F	00
DE	00	00
HL	00	00
PSW	00	00
PC	42	17
SP	FF	FF
Int-Reg	00	

**Flag**

S	1
Z	0
AC	1
P	0
C	0

Load me at

**Decimal - Hex Conversion**

Decimal	Hex
127	7f

To Hex     To Dec

**I/O Ports**

3	-	+	32
---	---	---	----

Update Port Value

**Memory**

127	-	+	0
-----	---	---	---

Update Memory

1 ;<Program title>  
2 jmp start  
3 ;data  
4 ;code  
5 start: nop  
6 MVI A, 04FH  
7 STA 007FH  
8  
9 MVI A, 078H  
10 OUT 05H  
11  
12 LDA 007FH  
13 MOV B, A  
14 IN 05H  
15 ADD B  
16 OUT 07FH  
17  
18 hlt|