

MIT Assignment-03

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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
<input type="text" value="0"/>	<input type="text" value="0"/>
<input type="button" value="To Hex"/>	<input type="button" value="To Dec"/>

I/O Ports

<input type="text" value="8"/>	<input type="button" value="-"/>	<input type="button" value="+"/>	<input type="text" value="00"/>
<input type="button" value="Update Port Value"/>			

Memory

<input type="text" value="8"/>	<input type="button" value="-"/>	<input type="button" value="+"/>	<input type="text" value="00"/>
<input type="button" value="Update Memory"/>			

```
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

0

Hex

0

To Hex

To Dec

I/O Ports

8

-

+

00

Update Port Value

Memory

8

-

+

50

Update Memory

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			

Decimal - Hex Conversion

Decimal

Hex

0

0

To Hex

To Dec

I/O Ports

2

-

+

50

Update Port Value

Memory

0

-

+

50

Update Memory

Load me at

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

<Program title>

jmp start

;data

;code

start: nop

ADD B

OUT 02H

hlt

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

Output:

Registers

A	3A
BC	32 00
DE	00 00
HL	00 00
PSW	00 00
PC	42 0A
SP	FF FF
Int-Reg	00

Flag

S	0
Z	0
AC	0
P	1
C	0

Load me at

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

<Program title>

jmp start

;data

;code

start: nop

ADI 08H

STA 003FH

hlt

Decimal - Hex Conversion

Decimal	Hex
<input type="text" value="0"/>	<input type="text" value="0"/>
<input type="button" value="To Hex"/>	<input type="button" value="To Dec"/>

I/O Ports

<input type="text" value="3"/>	-	+	<input type="text" value="50"/>
<input type="button" value="Update Port Value"/>			

Memory

<input type="text" value="0"/>	-	+	<input type="text" value="32"/>
<input type="button" value="Update Memory"/>			

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

Output:

Registers			Flag		Load me at	
A	6C		S	0		
BC	32	00	Z	0		
DE	00	00	AC	0		
HL	00	00	P	1		
PSW	00	00	C	0		
PC	42	06				
SP	FF	FF				
Int-Reg	00					

Decimal - Hex Conversion

Decimal	Hex
<input type="text" value="0"/>	<input type="text" value="0"/>
<input type="button" value="→ To Hex"/>	<input type="button" value="← To Dec"/>

I/O Ports

<input type="text" value="3"/>	<input type="button" value="-"/>	<input type="button" value="+"/>	<input type="text" value="32"/>
<input type="button" value="⌂ Update Port Value"/>			

Memory

<input type="text" value="3"/>	<input type="button" value="-"/>	<input type="button" value="+"/>	<input type="text" value="50"/>
<input type="button" value="⌂ Update Memory"/>			

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

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		Load me at	
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					

Decimal - Hex Conversion

Decimal	Hex
<input type="text" value="0"/>	<input type="text" value="0"/>
<input type="button" value="To Hex"/>	<input type="button" value="To Dec"/>

I/O Ports

<input type="text" value="3"/>	-	+	<input type="text" value="32"/>
<input type="button" value="Update Port Value"/>			

Memory

<input type="text" value="2"/>	-	+	<input type="text" value="0"/>
<input type="button" value="Update Memory"/>			

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

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

Output:

Registers			Flag		Load me at	
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

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

<Program title>

jmp start

;data

;code

start: nop

SUI 08H

STA 003FH

hlt

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

Output:

Registers			Flag		Load me at
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				

Decimal

0

Hex

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		Load me at
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				

Decimal - Hex Conversion

Decimal	Hex
0	0

I/O Ports

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

Memory

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

```
1
2 ;<Program title>
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
```

- 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

```

1
2 ;<Program title>
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

```

Decimal - Hex Conversion

Decimal	Hex
<input type="text" value="0"/>	<input type="text" value="0"/>
<input type="button" value="To Hex"/>	<input type="button" value="To Dec"/>

I/O Ports

<input type="text" value="3"/>	-	+	<input type="text" value="32"/>
<input type="button" value="Update Port Value"/>			

Memory

<input type="text" value="8"/>	-	+	<input type="text" value="32"/>
<input type="button" value="Update Memory"/>			

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
<input type="text" value="127"/>	<input type="text" value="7f"/>
<input type="button" value="To Hex"/>	<input type="button" value="To Dec"/>

I/O Ports

<input type="text" value="3"/>	-	<input type="text" value="32"/>
<input type="button" value="Update Port Value"/>		

Memory

<input type="text" value="127"/>	-	<input type="text" value="0"/>
<input type="button" value="Update Memory"/>		

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

20

21

22

23

24

```
<Program title>
jmp start
;data
;code
start: nop
MVI A, 04FH
STA 007FH
MVI A, 078H
OUT 05H
LDA 007FH
MOV B, A
IN 05H
ADD B
OUT 07FH
hlt
```