

INDIAN INSTITUTE OF INFORMATION TECHNOLOGY SONEPAT

Microprocessor and Interfacing Lab (CSC508)

Practical Lab File

Submitted To:

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Index

Practical No.	Topic	Page Number
1.	Addition of two 8 bit numbers	3
2.	Subtraction of two 8 bit numbers	4
3.	Addition with a carry of two 8 bit numbers	5
4.	Subtraction with a borrow of two 8 bit numbers	6
5.	Multiplication of two 8 bit numbers using repeated addition	7
6.	Multiplication of two 8 bit numbers using bit rotation	8
7.	Division of two 8 bit numbers using repeated addition	9
8.	Division of two 8 bit numbers using bit rotation	10

Practical 1: - Write a program for addition of two 8 bit numbers

CODE:

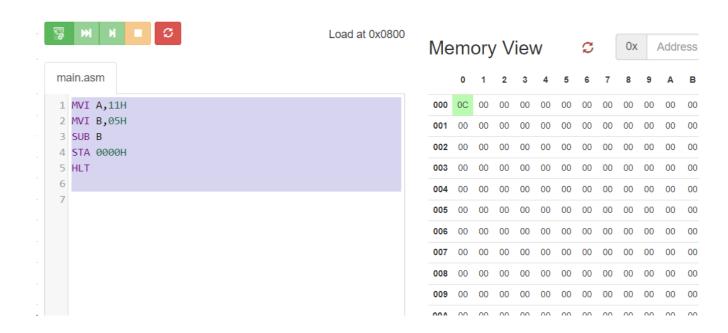


ivie	viernory view						Ü		Address					
	0	1	2	3	4	5	6	7	8	9	Α	В	С	D
000	06	00	00	00	00	00	00	00	00	00	00	00	00	00
001	00	00	00	00	00	00	00	00	00	00	00	00	00	00
002	00	00	00	00	00	00	00	00	00	00	00	00	00	00
003	00	00	00	00	00	00	00	00	00	00	00	00	00	00
004	00	00	00	00	00	00	00	00	00	00	00	00	00	00
005	00	00	00	00	00	00	00	00	00	00	00	00	00	00

Practical 2: - Write a program for subtraction of two 8 bit numbers

CODE:

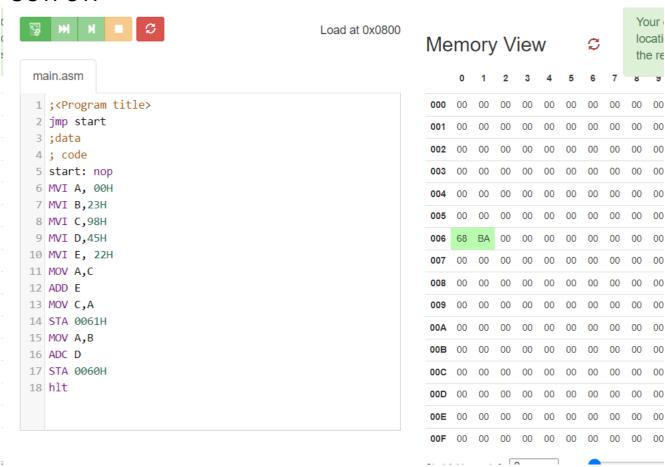
```
MVI A,11H
MVI B,05H
SUB B
STA 0000H
HLT
```



Practical 3: - Write a program for addition with a carry of two 8 bit numbers

CODE:

```
MVI A, 00H
MVI B,23H
MVI C,98H
MVI D,45H
MVI E, 22H
MOV A,C
ADD E
MOV C,A
STA 0061H
MOV A,B
ADC D
STA 0060H
hlt
```



Practical 4: - Write a program for subtraction of two 8 bit numbers with borrow.

CODE:

MVI A, 8DH
MVI B, 7DH
MOV C, A
SUB B
JC SUBTRACT
SUBTRACT: STA RESULT
RESULT: DB 00H
HLT;



Practical 5: - Write a program for multiplication of two 8 bit numbers using repeated addition.

CODE:

```
MVI c,04h

MVI a, 00h

MVI d,00h

loop: add b

jnc skip

inr d

skip: dcr c

jnz loop

mov b,d

mov c,a

mov a,c

sta 0000h

hlt
```

IV	/le	mo	ory	V	lev	V		Ø		UX	-	Adare	ess I							
		0	1	2	3	4	5	6	7	8	9	Α	В	С	D	E	F			
0	000	80	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00			
0	001	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00			
0	002	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00			
0	003	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00			
0	004	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00			
0	005	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00			
0	006	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00			
0	007	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00			
0	800	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00			
0	009	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00			
0	00A	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00			

Practical 6: - Write a program for multiplication of two 8 bit numbers using bit rotation method

CODE:

```
MVI D,06H
MVI A,05H
LXI H,0000H

LOOP: RRC
    JNC SKIP
    DAD D

SKIP: XCHG
    DAD H
    XCHG
    DCR C
    JNZ LOOP
    HLT
```

A/PSW	0x 05 56	main.asm	
ВС	0x 00 00	1 MVI D, 06H 2 MVI A, 05H	
DE	0x 00 00	3 LXI H,0000H	
HL	0x 1E 00	5 LOOP: RRC	
SP	0x FF FF	6 JNC S 7 DAD D	
PC	0x 08 14	8 9 SKIP: XCHG	
		10 DAD H	
		11 XCHG	
Flags	${\mathcal C}$	12 DCR C	
90		13 JNZ L	00P
7		14 HLT	

Practical 7: - Write a program for division of two 8 bit numbers by repeated addition method.

CODE:

```
MVI A, 27H

MVI B, 05H

MVI C, 00H

MVI D, 00H

LOOP: SUB B

JC DONE

INR C

JMP LOOP

DONE: MOV E, A

HLT
```

A/PSW	0x FF 97	main.asm
ВС	0x 05 07	1 MVI A, 27H 2 MVI B, 05H
DE	0x 00 FF	3 MVI C, 00H 4 MVI D, 00H
HL	0x 00 00	5 LOOP: SUB B
SP	0x FF FF	6 JC DONE 7 INR C
PC	0x 08 12	8 JMP LOOP 9 DONE: MOV E, A
		10 HLT
Flags	${\mathcal G}$	

Practical 8: - Write a program for division of two 8 bit numbers using by bit rotation method.

CODE:

```
MVI E,00H;
    LHLD 0008H;
    LDA 0007H;
    MOV B,A;
    MVI C,08H;
NEXT: DAD H;
    MOV A,E;
    RLC
    MOV E,A;
    MOV A,H;
    SUB B;
    JC SKIP;
    MOV H,A;
    INR E;
SKIP:DCR C;
    JNZ NEXT;
    MOV A,E;
    STA 0033H;
    MOV A,H;
    STA 0034H;
    HLT;
```

OUTPUT:

```
, main.asm
1
                                                         000 00 00 00 00 00 00 00 00 00 00 01
2 start: nop
                                                         001
                                                             00 00 00 00 00 00 00 00 00 00
 3
       MVI E,00H;
4
                                                          002 00 00 00
                                                                      00 00 00 00 00 00
      LHLD 0008H;
5
     LDA 0007H;
                                                          003 00 00
                                                                   00
                                                                      FF 00 00 00
6
      MOV B,A;
                                                          004 00 00 00
                                                                      00 00 00 00
       MVI C,08H;
8 NEXT:DAD H;
                                                         005 00 00 00
                                                                      00 00 00 00
9
       MOV A,E;
                                                          006 00 00 00
                                                                      00 00 00 00
. 10
       RLC
                                                         007
                                                             00 00
                                                                   00
                                                                      00 00 00 00
- 11
       MOV E,A;
12
                                                             00 00
                                                                   00
                                                                      00
      MOV A,H;
13
     SUB B;
                                                         009 00 00 00 00 00 00 00 00 00 00
14 JC SKIP;
```

00 01

00 00 00

00 00

00 00

00 00

00 00

00 00

00

00

00 00

00 00

00 00

00 00

5

00 00 00 00 00