

INDIAN INSTITUTE OF INFORMATION TECHNOLOGY SONEPAT

Microprocessor and Interfacing Lab (CSC508)

Practical Lab File

Submitted To:

Dr. Rajiv Verma

Submitted By

Nitesh Shakya

Roll No.- 12111023

Branch: CSE

Semester: 5

Session: 2021-25

Practical o.	Topic	Page Number
1.	Addition of two 8 bit numbers	5
2.	Subtraction of two 8 bit numbers	6
3.	Addition with a carry of two 8 bit numbers	7
4.	Subtraction with a borrow of two 8 bit numbers	8
5.	Multiplication of two 8 bit numbers using repeated addition	9
6.	Multiplication of two 8 bit numbers using bit rotation	10
7.	Division of two 8 bit numbers using repeated addition	11
8.	Division of two 8 bit numbers using bit rotation	12

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

CODE:

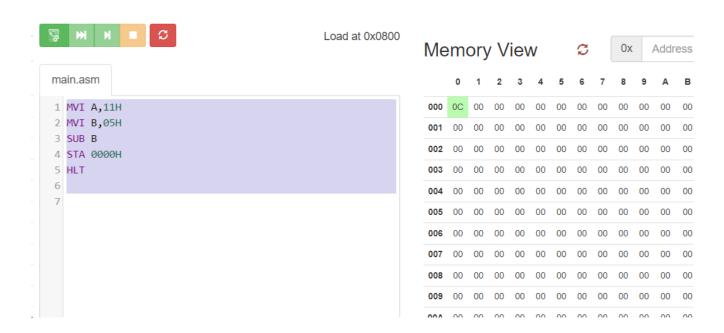


iviernory view								Ü		UX					
		0	1	2	3	4	5	6	7	8	9	Α	В	С	D
00	0 0)6	00	00	00	00	00	00	00	00	00	00	00	00	00
00	1 (00	00	00	00	00	00	00	00	00	00	00	00	00	00
00	2 (00	00	00	00	00	00	00	00	00	00	00	00	00	00
00	3 (00	00	00	00	00	00	00	00	00	00	00	00	00	00
00	4 (00	00	00	00	00	00	00	00	00	00	00	00	00	00
00	5 (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:

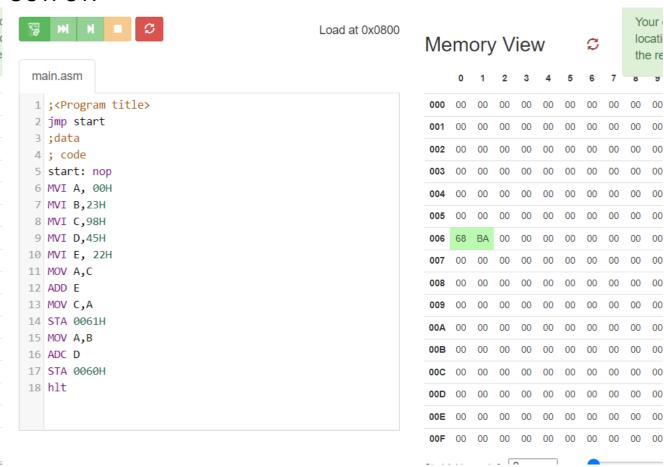
```
MVI A,11H
MVI B,05H
SUB B
STA 0000H
HLT
```



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

CODE:

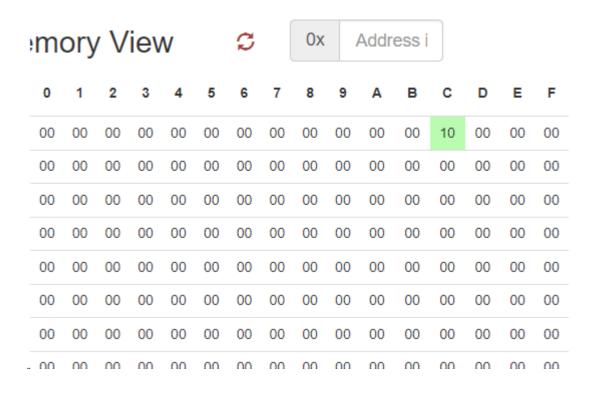
```
MVI B,23H
MVI C,98H
MVI D,45H
MVI E, 22H
MVV A,C
ADD E
MVV C,A
STA 0061H
MVV A,B
ADC D
STA 0060H
hlt
```



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	iviemory view							Ø	OX Address I								
		0	1	2	3	4	5	6	7	8	9	Α	В	С	D	E	F
0	00	80	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
0(01	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
0	02	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
0	03	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
00	04	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
00	05	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
00	06	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
00	07	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
00	80	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
0	09	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
00	0A	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.as	m
ВС	0x 00 00	1 MVI 2 MVI	
DE	0x 00 00		Н,0000Н
HL	0x 1E 00	5 LOOP	
SP	0x FF FF	6 7	JNC SKIP DAD D
PC	0x 08 14	8 9 SKIP	: XCHG
		10	DAD H
		11	XCHG
Flags	S	12	DCR C
75.35		13	JNZ LOOP
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;
```

		0	1	2	3	4	5	6	7	8	9	Д
	000	00	00	00	00	00	00	00	00	00	00	01
	001	00	00	00	00	00	00	00	00	00	00	01
	002	00	00	00	00	00	00	00	00	00	00	01
	003	00	00	00	FF	00	00	00	00	00	00	01
	004	00	00	00	00	00	00	00	00	00	00	01
	005	00	00	00	00	00	00	00	00	00	00	01
	006	00	00	00	00	00	00	00	00	00	00	01
	007	00	00	00	00	00	00	00	00	00	00	01
	800	00	00	00	00	00	00	00	00	00	00	01
	009	00	00	00	00	00	00	00	00	00	00	01
												-