

INDIAN INSTITUTE OF INFORMATION TECHNOLOGY SONEPAT

Microprocessor and Interfacing Lab (CSC508)

Practical Lab File

Submitted To:

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

CODE:

MVI A,01H

MVI B,05H

ADD B

STA 0000H

HLT

IVIE	nemory view						Ü		UX					
	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:

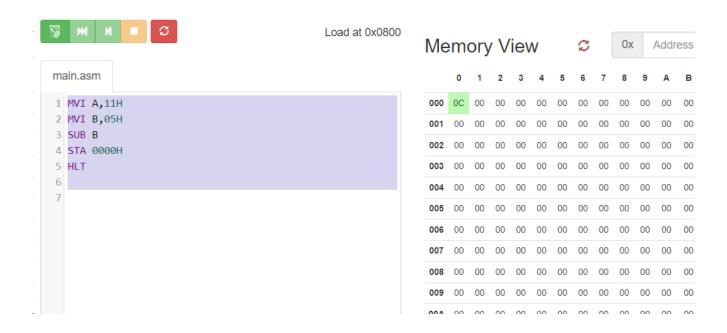
MVI A,11H

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

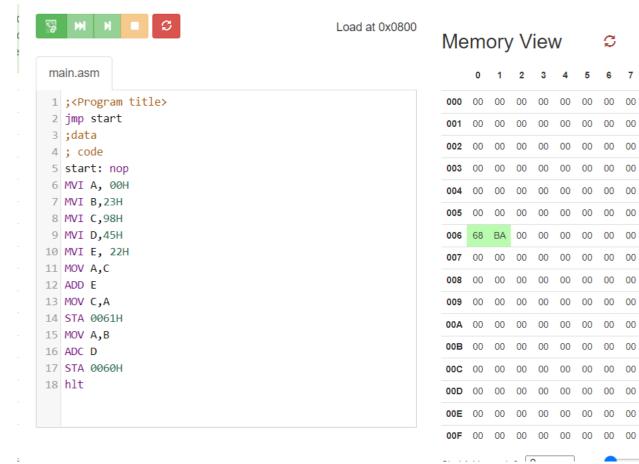
MOV A,B

ADC D

STA 0060H

hlt

OUTPUT:



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00 00

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;

:m	ory	٧V	iev	٧		S		0x Address i							
0	1	2	3	4	5	6	7	8	9	Α	В	С	D	E	F
00	00	00	00	00	00	00	00	00	00	00	00	10	00	00	00
00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
- 00	nn	nn	nn	nn	nn	nn	ΩΩ	nn	nn	nn	nn	nn	ΛΛ	nn	NΛ

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

CODE:

MVI b,02h

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

IVIE	emory view						UX Address I									
	0	1	2	3	4	5	6	7	8	9	Α	В	С	D	E	F
000	80	00	00	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	00	00
002	00	00	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	00	00
004	00	00	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	00	00
006	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
007	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
008	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
009	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
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

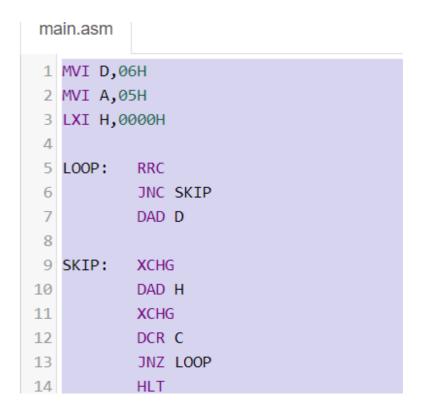
CODE:

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
ВС	0x 00 00
DE	0x 00 00
HL	0x 1E 00
SP	0x FF FF
PC	0x 08 14
Flags	S
7	



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

OUTPUT:

A/PSW	0x FF 97
ВС	0x 05 07
DE	0x 00 FF
HL	0x 00 00
SP	0x FF FF
PC	0x 08 12

```
main.asm

1 MVI A, 27H
2 MVI B, 05H
3 MVI C, 00H
4 MVI D, 00H
5 LOOP: SUB B
6 JC DONE
7 INR C
8 JMP LOOP
9 DONE: MOV E, A
10 HLT
```

Flags 2

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;

```
, main.asm
1
2 start: nop
3 MVI E,00H;
4 LHLD 0008H
     LHLD 0008H;
     LDA 0007H;
      MOV B,A;
7 MVI C,08
8 NEXT:DAD H;
      MVI C,08H;
9
      MOV A,E;
10
       RLC
      MOV E,A;
11
12
     MOV A,H;
13
      SUB B;
14 JC SKIP;
```

	0	1	2	3	4	5	6	7	8	9	Δ
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
											٠.

Practical 9: - Write an assembly language program to perform addition of 2 BCD numbers without using DAD in an 8085 microprocessor..

CODE:

LXI H,0000H

MOV B, M

INX H

MOV C,M

MVI A, 00H

MOV A,B

ADD C

MOV B,A

ANI OFH

CPI 09H

JNC M

MOV A,B

JMP END

M: JNZ ABC

MOV A,B

JMP END

ABC: ADI 06H

MOV C,A

ANI FOH

MOV D,A

MOV A,C

SUB D

MOV C,A

MOV A,B

ANI FOH

 $\mathsf{ADD}\;\mathsf{D}$

CPI 90H

JNC M2

ADD C

JMP END

M2: JNZ XYZ

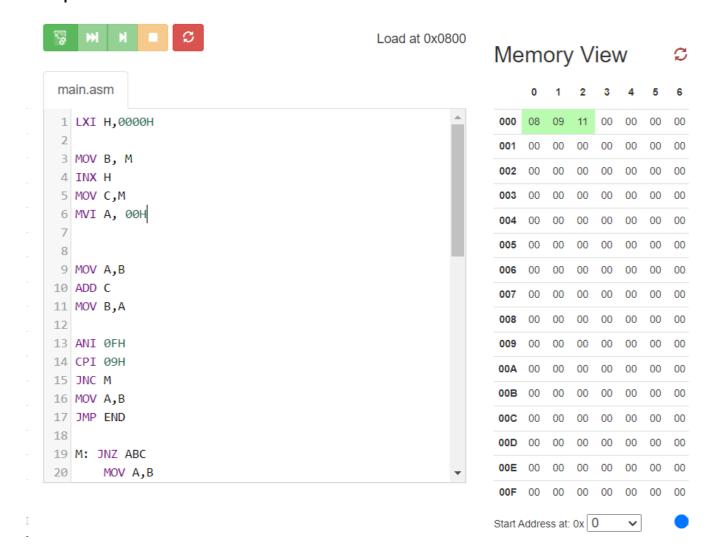
ADD C

JMP END

```
XYZ: ADI 60H
ADD C
MOV B,A
MVI A,01H
STA 0001H
MOV A,B
JMP END
```

END:STA 0002H HLT

Output:



10. Write an assembly language program to find the maximum value in an array in an 8085 microprocessor.

Code:

LXI H,0001H LDA 0000H

MOV D,A

MVI A,0H

LOOP:CMP M

JNC VALUPDT

MOV A,M

VALUPDT: INX H

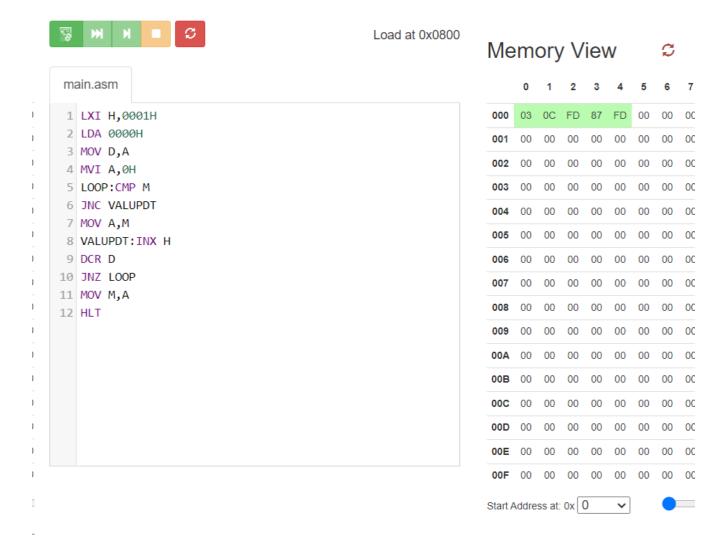
DCR D

JNZ LOOP

MOV M,A

HLT

Output:



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11. Write an assembly language program to find the square of an 8 bit number in an 8085 microprocessor.

Code:

LHLD 0000H

XCHG

LDA 0000H

LXI H,0000

MVI C,08H

Loop:DAD H

RAL

JNC Ahead

DAD D

Ahead:DCR C

JNZ Loop

SHLD 0001H

HLT

Output:

