Microprocessor Basic Arithmetic Program0

8 Bit Addition

MVI D, 05 H
MVI E, 06 H
MOV A,D
ADD E
STA 9005
HLT

Mem-Addr	Opcode, Operand.	Hex Code.	Comment
8000.	MVI D, 05 H	16	Stores 05 to D Register
8002	MVI E, 06 H	1E	Stores 06 to E Register
8004	MOV A, D	7A	Transfer the Data D to A Register
8005	ADD E	83	Add register E to register A
8006	STA 9005 H	32	Store sum into 9005 address
8009	HLT	76	Stop the program execution

8 Bit Subtraction

MVI D, 05 H
MVI E, 06 H
MOV A,D
SUB E
STA 9006 H
HLT

Mem-Addr	Opcode, Operand.	Hex Code.	Comment
8000.	MVI D, 06 H	16	Stores 06 to D Register
8002	MVI E, 05 H	1E	Stores 05 to E Register
8004	MOV A, D	7A	Transfer the Data from Register D to A Register
8005	SUB E	93	Subtract register E from Accumulator A
8006	STA 9006 H	32	Store sum into 9006 address
8009	HLT	76	Stop the program execution

8 Bit Addition

LDA 9000H
MOV B, A
LDA 9001 H
ADD B
STA 9002 H
HLT

8 Bit Addition

LXI H, 9000H
MOV A, M

```
INX H
ADD M
STA 9500 H
HLT
```

8 Bit Division

```
      MVI A, 15 H
      MVI B, 065H
      MVI C, 00H
AA:   INR C
      SUB C
      JNC AA
       DCR C
       ADD B
       STA 9000 H
       HLT
```

8 Bit Multiplication

```
      MVI A, 00 H
      MVI B, 07 H
      MVI C, 08 H
AA:   ADD  E
      DCR C
      JNZ AA
       STA 8500
       //RST 5
```

16 Bit Addition

```
LXI B, 4422 H
LXI D, 3311 H
MOV A,C
ADD E
MOV L, A
MOV A, B
ADC D
MOV H,A
SHLD 8500 H
HLT
```

16 Bit Subtraction

```
LXI B, 4422 H
LXI D, 3311 H
MOV A,C
SUB E
MOV L,A
MOV A,B
```

```
SBB D
MOV H,A
SHLD 8500 H
HLT
```

16 Bit Addition

```
      LHLD 9000 H
      XCHG
      LHLD 9002 H
      MVI C, 00H
      DAD D
      JNC AA
      INR C
AA:  SHLD 9004 H
      MOV A, C
      STA 9006H
      HLT
```

16 Bit Subtraction

```
      LHLD 9000 H
      XCHG
      LHLD 9002 H
      MOV A, E
      SUB L
      MOV L, A
      MOV A, D
      SBB H
      MOV H, A
      SHLD 9006 H
      HLT
```

8 Bit Multiplication

```
      LXI H 9000 H
      MOV B, M
      INX H
      MOV CM
      MVI A, 00H
AA: ADD B
     DCR C
     JNZ AA
     INX H
     MOV M,A
     HLT
```

8 Bit Division

```
        LXI H,8000H
        MOV A,M
        INX H
        MOV B,M
        MVI C,00H
AA: INR C
        SUB B
        JNC AA
        DCR C
        ADD B
        INX H
        MOV M,C
        MOV M,A
        HLT
```

Decimal Subtraction

```
LXI H, 5001 H
MVI A, 99
SUB M
INR A
DCX H
ADD M
DAA
STA 5005H
HLT
```

Count No.of 1’s in 8 Bit Data

```
        MVI A, 0F H
        MVI B, 08 H
        MVI C, 00H
BB: RAR
        JNC AA
        INR C
AA: DCR B
        JNZ BB
         // RST 5
HLT
```

Add Even no . Only

```
        LDA 5000 H
        MOV C, A
        MVI B, 00H
        MOV D,B
        LXI H, 5001
L1:  MOV A,M
        ANI 01 H
        JNZ L2
```

```
      MOV A, B
      ADD M
      MOV B, A
      JNC L2
      INR D
L2:   INX H
      DCR C
      JNZ L1
      MOV A,B
      STA 500BH
      MOV A,D
      STA 500C H
      HLT
```

Add Negative no . Only

```
      LDA 4000 H
      MOV C, A
      MVI B, 00H
      MOV D,B
      LXI H, 4001 H
L1:   MOV A,M
      ANI 80 H
      JZ
      MOV A, B
      ADD M
      MOV B, A
      JNC L2
      INR D
L2:   INX H
      DCR C
      JNZ L1
      MOV A,B
      STA 400 CH
      MOV A,D
      STA 400 DH
      HLT
```