1.multiplication

```
    LDA 8500
    MOV B, A
    LDA 8501
    MOV C, A
    CPI 00
    JZ LOOP
    XRA A
    LOOP1: ADD B
    DCR C
    JZ LOOP
    JMP LOOP1
    LOOP: STA 8502
    RST 1
```

2.division

```
     LDA 8501
     MOV B, A
     LDA 8500
     MVI C,00
LOOP:   CMP B
     JC LOOP1
     SUB B
     INR C
    JMP LOOP
LOOP1:  STA 8502
     MOV A, C
     STA 8503
     RST 1
```

3. 16 bit multiplication

```
     LHLD 2050
     SPHL
     LHLD 2052
     XCHG
     LXI H,0000H
     LXI B,0000H
AGAIN: DAD SP
     JNC START
     INX B
     START: DCX D
     MOV A,E
     ORA D
     JNZ AGAIN
     SHLD 2054
     MOV L,C
```

MOV H,B
SHLD 2056
HLT

4, 16 BIT SUBTRACTION

```
LHLD 2500
XCHG
LHLD 2502
MOV A, E
SUB L
MOV L, A
MOV A, D
SBB H
MOV H, A
SHLD 2504
HLT
```

5.factorial

```
LDA 2001
MOV B,A
MVI C,01H
MVI E,01H
LOOP: MOV D,C
MVI A,00H
LP: ADD E
DCR D
JNZ LP
MOV E,A
INR C
DCR B
JNZ LOOP
MOV A,E
STA 2010
HLT
```

6.largest number in array

```
LXI H,2050
MOV C,M
DCR C
INX H
MOV A,M
LOOP1: INX H
CMP M
JNC LOOP
MOV A,M
LOOP: DCR C
JNZ LOOP1
```

```
STA 2058
HLT
```
7.smallest number in array
```
LXI H,2050
MOV C,M
DCR C
INX H
MOV A,M
LOOP1: INX H
CMP M
JC LOOP
MOV A,M
LOOP: DCR C
JNZ LOOP1
STA 2058
HLT
```
8.ascending order
```
LOOP: LXI H,3500
MVI D,00
MVI C,05
LOOP1: MOV A,M
INX H
CMP M
JC LOOP2
MOV B,M
MOV M,A
DCX H
MOV M,B
INX H
MVI D,01
LOOP2: DCR C
JNZ LOOP1
MOV A,D
RRC
JC LOOP
HLT
```
9.descending order
```
LOOP: LXI H,3500
MVI D,00
MVI C,05
LOOP1: MOV A,M
INX H
CMP M
JNC LOOP2
```

```
MOV B,M
MOV M,A
DCX H
MOV M,B
INX H
MVI D,01
LOOP2: DCR C
JNZ LOOP1
MOV A,D
RRC
JC LOOP
HLT
```

10.greatest of two number

```
LDA 2050H
MOV B,A
LDA 2051H
CMP B
JNC STORE
MOV A,B
STORE: STA 2052H
HLT
```

11.smallest of two number

```
LDA 2050H
MOV B,A
LDA 2051H
CMP B
JNC STORE
STORE: MOV A,B
STA 2052H
HLT
```

12.lcm

```
LXI H, 8000H
MOV C, M
MVI B, 00H
INX H
MOV A, M
CMA
MOV E, A
MVI D, FFH
MOV A,B
CMA
MOV D,A
INX D
LXI H, 0000H
```

```
NEXT: DAD B
SHLD 8050H
LOOP: DAD D
JNC SKIP
MOV A, H
ORA L
JZ EXIT
JMP LOOP
SKIP: LHLD 8050H
JMP NEXT
EXIT: LHLD 8050H
HLT
```

13.gcd

```
LXI H,8000H
MOV A, M
INX H
MOV B, M
LOOP: CMP B
JZ STORE
JC EXG
SUB B
JMP LOOP
EXG: MOV C,B
MOV B, A
MOV A, C
JMP LOOP
STORE: STA 8050H
HLT
```

14.odd even

```
LDA 2050
ANI 01
JZ LOOP1
MVI A,11
JMP LOOP2
LOOP1: MVI A,22
LOOP2: STA 2051
HLT
```

15. Write an assembly language program to convert hexadecimal to Decimal(BCD)

```
LXI H,8000H
MVI D,00H
XRA A
MOV C, M
LOOP: ADI 01H
```

```
DAA
JNC SKIP
INR D
SKIP: DCR C
JNZ LOOP
MOV L, A
MOV H, D
SHLD 8050H
HLT
```

16. Write a program to convert Decimal to Hexadecimal number

```
LXI SP,80FFH
LXI H, 802BH
LXI B, 802CH
MOV A, M
CALL BCDBIN
STAX B
HLT
BCDBIN: PUSH B
MOV B, A
ANI 0FH
MOV C, A
MOV A, B
ANI 0F0H
RRC
RRC
RRC
RRC
MOV D, A
XRA A
MVI E, 0AH
SUM: ADD E
DCR D
JNZ SUM
ADD C
POP B
RET
```

17.