Exchange of two 16 bit numbers

LHLD 5100h

XCHG

LHLD 5102h

SHLD 5100h

XCHG

SHLD 5102h

HLT

1. To add two 8 bit numbers

MVI H 00h

MVI A 04h

MVI L 00h

MVI B 03h

ADD B

JNC NEXT

INR H

NEXT: MOV L A

SHLD 5100h

HLT

1. To subtract two 8 bit numbers

MVI A 09h

MVI B 04h

SUB B

STA 5100h

HLT

To add two 16 bit numbers

LHLD 5100h

XCHG

LHLD 5102h

DAD D

SHLD 5104h

HLT

To add n-byte numbers

LXI H F100h

LXI B F200h

LXI D F300h

STC

CMC

MVI A 04h

LOOP: STA F400h

LDAX B

ADC M

STAX D

INX H

INX B

INX D

LDA F400h

DCR A

JNZ LOOP

HLT

Block transfer of data bytes

LXI H E000h

LXI D E100h

MVI C 05h

LOOP: MOV A M

STAX D

INX H

INX D

DCR C

JNZ LOOP

HLT

Add N decimal number

LXI H E000h

LXI D 0000h

MOV C M

INX H

MVI A 00h

OUTLOOP: ADD M

DAA

JNC INLOOP

INR D

INLOOP: INX H

DCR C

JNZ OUTLOOP

MOV E A

XCHG

SHLD FFF7h

HLT

4digit BCD numbers

LHLD F100h

XCHG

LHLD F102h

DAD D

MOV A L

DAA

MOV A H

DAA

MOV H A

SHLD F104h

HLT

Subtract two 16 bit numbers

LHLD F100h

XCHG

LHLD F102

MOV A L

SUB E

MOV L A

MOV H A

SBB D

MOV H A

SHLD F104h

HLT

Sort an array in ascending order

START: LXI H E050h

MVI D 00h

MVI C 05h

CHECK: MOV A M

INX H

CMP M

JC NEXTBYTE

MOV B M

MOV M A

DCX H

MOV M B

INX H

MVI D 01h

NEXTBYTE: DCR C

JNZ CHECK

MOV A D

RRC

JC START

HLT

Multiply two 8 bit numbers

LDA F100h

MOV C A

LDA F101h

MOV B A

SUB B

STC

CMC

LOOP: ADC B

DCR C

JNZ LOOP

STA F102

HLT

Block transfer of data bytes in reverse order

LXI H E000h

LXI D E104h

MVI C 05h

LOOP: MOV A M

STAX D

INX H

DCX D

DCR C

JNZ LOOP

HLT

Addition of hexadecimal until FF is encountered

LXI H E000h

MVI C 00h

MOV B C

LOOP: MOV A M

CPI FFh

JZ DISPLAY

ADD C

JNC NEXT

INR B

NEXT: MOV C A

INX H

JMP LOOP

DISPLAY: MOV A C

STA FFF7h

MOV A B

STA FFF8h

HLT

2’scomplement of 8 bit number

LDA F100h

CMA

INR A

STA F101h

HLT

2’s complement of 16 bit number

LHLD E001h

MOV A L

CMA

INR A

MOV L A

MOV A H

CMA

INR A

MOV H A

SHLD E003h

HLT

To find smallest among two numbers

LXI H 2000h

MOV A M

INX H

CMP M

JC NEXT

MOV A M

NEXT: INX H

MOV M A

HLT

Module 10counter with 1 second delay

START: MVI B 00h

MOV A B

DISPLAY: OUT 00h

MVI C 01

LOOP: DCR C

JNZ LOOP

INR B

MOV A B

CPI 0Ah

JNZ DISPLAY

JZ START

HLT

To count 0’s and 1’s in a byte

MVI C 08h

MVI A 06h

MVI D 00h

MVI E 00h

LOOP: RAL

JC INCDREG

INR E

JMP FORWARD

INCDREG: INR D

FORWARD: DCR C

JNZ LOOP

XCHG

SHLD F000h

HLT

To find largest of two numbers

LXI H 2000h

MOV A M

INX H

CMP M

JNC NEXT

MOV A M

NEXT: INX H

MOV M A

HLT

Addition of n-1 byte numbers

MVI C 05h

XRA A

MOV B A

LXI H 8050h

LOOP: ADD M

DAA

JNC NEXT

INR B

NEXT: INX H

DCR C

JNZ LOOP

STA 8600h

MOV A B

STA 8601h

HLT

Sort an array in descending order

START: LXI H E050h

MVI D 00

MVI C 05h

CHECK: MOV A M

INX H

CMP M

JNC NEXTBYTE

MOV B M

MOV M A

DCX H

MOV M B

INX H

MVI D 01h

NEXTBYTE: DCR C

JNZ CHECK

MOV A D

RRC

JC START

HLT