Computer Organization Assignments

1. Addition of two 8 bit numbers having 16 bit sum.

# BEGIN 0000H

LXI H,C050

MOV A,M

INX H

ADD M

STA C052

HLT

# ORG C050

# DB 55H,66H

2. Subtraction of two 8 bit numbers (Single program should satisfy the following cases)

Case:1 When minuend is greater than subtrahend

# BEGIN 0000H

MVI A, 66H

MVI B, 55H

CMP B

JC LABEL

SUB B

STA C052

HLT

LABEL:

SUB B

CMA

INR A

STA C052h

HLT

Case 2: When minuend is smaller than subtrahend

# BEGIN 0000H

LXI H,C050

MOV A,M

INX H

MOV B,M

CMP B

JC LABEL

SUB B

STA C052

HLT

LABEL:

SUB B

CMA

INR A

STA C052h

HLT

#ORG C050

#DB 55H, 76H

3. Multiplication two 8 bit numbers, result is 16 bit number.

# BEGIN 0000H

LHLD C050

XCHG

MOV C,D

MVI D,00H

LXI H,0000H

LABEL:

DAD D

DCR C

JNZ LABEL

SHLD C052H

HLT

# ORG C050

#DB FFH, FFH

4. Division of two 8 bit number.

# BEGIN 0000H

LXI H,C050

MOV A,M

INX H

MVI C,00H

CMP M

JNC LABEL

STA C053

MOV A,C

STA C052

HLT

LABEL:

INR C

SUB M

CMP M

JNC LABEL

STA C053

MOV A,C

STA C052

HLT

# ORG C050

#DB 0E, 03H

5. Write a 8085 program to find largest number in the given array of numbers.

# BEGIN 0000H

LXI H,C050

MOV C,M

INX H

MOV A,M

LABEL:

CMP M

JNC LABEL2

MOV A,M

LABEL2:

INX H

DCR C

JNZ LABEL

STA C056

HLT

# ORG C050

#DB 05H, 0EH, 03H, 0FH, 04H, 09H

6. Write a 8085 program to find smallest number in the given array of numbers.

#BEGIN 0000H

LXI H, C050

MOV C,M

INX H

LXI D, 0000H

MOV A,M

LABEL1:

CMP M

JC LABEL2

MOV A,M

LABEL2:

INX H

DCR C

JNZ LABEL1

STA C057

HLT

# ORG C050

#DB 06H, 0EH, 09H, 0FH, 04H, 09H,02H

* 1. Write a 8085 program to find smallest & largest number in the given array of numbers.

#BEGIN 0000H

LXI H, C050

MOV C,M

INX H

MOV E,M

MOV D,M

LABEL1:

MOV A,E

CMP M

JC LABEL2

MOV E,M

LABEL2:

MOV A,D

CMP M

JNC LABEL3

MOV D,M

LABEL3:

INX H

DCR C

JNZ LABEL1

MOV A,D

STA C057

MOV A,E

STA C058

HLT

# ORG C050

#DB 06H, 0EH, 09H, DFH, 04H, 09H,02H

7. Write a 8085 program to sort the given array of numbers in ascending order.

# BEGIN 0000H

LXI H,C050

MVI C,04H

OUTER:

MOV B,C

INNER:

MOV A,M

INX H

MOV E,M

CMP E

JC NO\_SWAP

MOV M,A

DCX H

MOV M,E

INX H

NO\_SWAP:

DCR B

JNZ INNER

LXI H,C050H

DCR C

JNZ OUTER

HLT

# ORG C050

# DB 55H,FFH, 57H, 1DH,66H

8. Write a 8085 program to sort the given array of numbers in descending order.

# BEGIN 0000H

LXI H,C050

MVI C,04H

OUTER:

MOV B,C

INNER:

MOV A,M

INX H

MOV E,M

CMP E

JNC NO\_SWAP

MOV M,A

DCX H

MOV M,E

INX H

NO\_SWAP:

DCR B

JNZ INNER

LXI H,C050H

DCR C

JNZ OUTER

HLT

# ORG C050

# DB 55H,FFH, 57H, 1DH,66H

9. Write a 8085 program to convert a given hexadecimal number to BCD number.

# BEGIN 0000H

LXI H,C050H

MOV B,M

MVI A,00H

LOOP:

INR A

DAA

DCR B

JNZ LOOP

STA C051H

HLT

# ORG C050

# DB 48H

10. Write a 8085 program to convert a BCD number into hexadecimal number.

MVI B,0FH

MVI A,0FH

MVI C,00H

CPI 10H

JNC LAB

CPI 0AH

JNC LAB1

STA C050H

HLT

LAB1:

ADI 06H

STA C050H

HLT

LAB:

ANI F0H

RLC

RLC

RLC

RLC

MOV C,A

MVI A,00H

LOOP:

ADI 06H

DCR C

JNZ LOOP

MOV C,A

MOV A,B

SUB C

STA C050H

HLT