Lab 06

SUB: CSA

NAME: JARIWALA SAHIL YOGESHKUMAR

ROLL NO: CE049

1. Write an assembly program to find the GCD and LCM of two numbers.

GCD PROGRAM:

LXI H,5050H MOV A,M INX H MOV B,M L1: CMP B JZ OUT JC L2 SUB B JMP L1 L2: MOV C,B MOV B,A

MOV A,C JMP L1

OUT: STA 5052H

HLT

OUTPUT:

```
Start 20560
;<Program title>
                                                                      Address (Hex) Address Data
                                                                        5050
                                                                                   20560
jmp start
                                                                        5051
                                                                                   20561
                                                                                           15
;data
                                                                        5052
                                                                                   20562
                                                                                           5
                                                                        5053
                                                                                   20563
                                                                                           0
                                                                        5054
                                                                                   20564
                                                                                           0
; code
                                                                        5055
                                                                                   20565
                                                                                           0
start: nop
LXI H,5050H
                                                                        5056
                                                                                   20566
                                                                                          0
MOV A,M
                                                                        5057
                                                                                   20567
                                                                                          0
                                                                        5058
                                                                                   20568
                                                                                         0
MOV B,M
                                                                        5059
                                                                                   20569
L1: CMP B
JZ OUT
                                                                        505A
                                                                                   20570
JC L2
                                                                     Line No Assembler Message
SUB B
JMP L1
                                                                             Program assembled successfully
L2: MOV C,B
MOV B, A
MOV A, C
JMP L1
OUT: STA 5052H
HLT
```

LCM PROGRAM:

LXI H,5050H

MOV D,M

MOV A,M

INX H

MOV B,M

MOV E,M

L1: CMP B

JZ L3

JC L2

SUB B

JMP L1

L2: MOV C,B

MOV B,A

MOV A,C

JMP L1

L3: MOV C,A

MVI A,00H

L4: ADD D

DCR E

JNZ L4

MVI D,00H

L5: SUB C

INR D

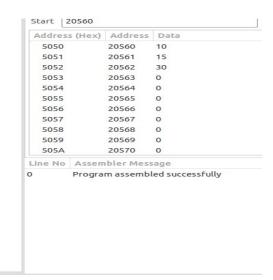
JNC L5

ADD C

DCR D MOV A,D STA 5052H HLT

OUTPUT:

scarc. Hop
LXI H,5050H
MOV D,M
MOV A,M
INX H
MOV B,M
MOV E,M
L1: CMP B
JZ L3
JC L2
SUB B
JMP L1
L2: MOV C,B
MOV B, A
MOV A, C
JMP L1
L3: MOV C,A
MVI A,00H
L4: ADD D
DCR E
JNZ L4
MVI D,00H
L5: SUB C
INR D
JNC L5
ADD C
DCR D
MOV A,D
STA 5052H
HLT



2. Write an assembly language program to Sort an array of 10 numbers.

PROGRAM:

MVI C,10

DCR C

REPEAT: MOV D,C

LXI H,5001H

LOOP: MOV A,M

INX H

CMP M

JC SKIP

MOV B,M

MOV M,A

DCX H

MOV M,B

INX H

SKIP: DCR D

JNZ LOOP

DCR C

JNZ REPEAT

HLT

OUTPUT:

Address	(Hex) Address	Data	
5001	20481	10	
5002	20482	4	
5003	20483	15	
5004	20484	6	
5005	20485	7	
5006	20486	20	
5007	20487	11	
5008	20488	15	
5009	20489	18	
500A	20490	5	
500B	20491	0	
Line No	Assembler Mes	sage	
	Program assembled successfully		

Address	(Hex)	Addres	s Data	
5001		20481	4	
5002		20482	5	
5003		20483	6	
5004		20484	7	
5005		20485	10	
5006		20486	11	
5007		20487	15	
5008		20488	15	
5009		20489	18	
500A		20490	20	
500B		20491	0	
Line No	Assembler Message			
O Program assembled successfully				