Experiment 5

AIM: Additional programming of 8085 microprocessor.

1. To write a program to arrange an array of data in ascending order

ALGORITHM:

1. Initialize HL pair as memory pointer
2. Get the count at 4200 into C – register
3. Copy it in D – register (for bubble sort (N-1) times required)
4. Get the first value in A – register
5. Compare it with the value at next location.
6. If they are out of order, exchange the contents of A –register and Memory
7. Decrement D –register content by 1
8. Repeat steps 5 and 7 till the value in D- register become zero
9. Decrement C –register content by 1
10. Repeat steps 3 to 9 till the value in C – register becomes zero

PROGRAM: LXI H,4200 MOV C, M DCR C

```
REPEAT: MOV D, C
LXI H,4201
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
```

OBSERVATION:

Input: 4200 05 (Array Size)
4201 05
4202 04
4203 03
4204 02
4205 01

Output: 4200 05(Array Size)
4201 01
4202 02
4203 03
4204 04
4205 05

2. Write a program to determine number of +ve, -ve and zeros from ten signed data bytes stored at C100 H onwards. Store the answer at location C200 H onwards.

```
LXI H, 0C100H
MVI C, 0AH
MVI B, 00H
MVI D, 00H
MVI E, 00H
LOOP: MOV A, M
CPI 00H
JNZ PON
INR B
JMP OVER
PON: RAL
JC NEG
INR D
JMP OVER
```

NEG: INR E

OVER: INX H

DCR C

JNZ LOOP

LXI H, 0C200H

MOV M, B

INX H

MOV M, D

INX H

MOV M, E

RST 1

3. write an 8085 ALP to count the no. of byte that are greater than 25 $_{10}$ and lesser than 65 $_{10}$ from an array of twenty bytes stored on M.L. 2000h onwards, store such no. on M.L. 2100H. onwards.

```
LXI H, 2000H
LXI D, 2100H
MVI C, 14H
MVI B, 00H
X12: MOV A, M
        CPI 19H
        JC X11
        CPI 41H
        JNC X11
        INR B
        STAX D
        INX D
        X11: INX H
        DCR C
        JNZ X12
  HLT
```

Conclusion: