EXPERIMENT NO: 6

AIM: PART A: WRITE AN ASSEMBLY LANGUAGE PROGRAM TO SORT 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 Accumulator.
5. Compare it with the value at next location.
6. If they are out of order, exchange the contents of Accumulator and memory.
7. Decrement content of D register by 1.
8. Repeat steps 5 and 7 till the value in register D becomes zero.
9. Decrement content of register C by 1.
10. Repeat steps 3 to 9 till the value in register C becomes zero.

PROGRAM:

```
        LXI H,4201H
        MVI C,05H
REPEAT: MOV D,C
        LXI H, 4201H
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: 4201H: 10H

4202H:	25H
4203H:	12H
4204H:	22H
4205H:	05H

Output:
4201H:	05H
4202H:	10H
4203H:	12H
4204H:	22H
4205H:	25H

PART B: WRITE AN ASSEMBLY LANGUAGE PROGRAM TO SORT DATA IN DECENDING 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 Accumulator.
5. Compare it with the value at next location.
6. If they are out of order, exchange the contents of Accumulator and memory.
7. Decrement content of register D by 1.
8. Repeat steps 5 and 7 till the value in register D becomes zero.
9. Decrement register C by 1.
10. Repeat steps 3 to 9 till the value in register C becomes zero.

PROGRAM:

```
        LXI H,4201H
        MVI C,05H

REPEAT: MOV D,C
        LXI H,4201

LOOP:   MOV A,M
        INX H
        CMP M
        JNC 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:	4201H:	10H
	4202H:	25H
	4203H:	12H
	4204H:	22H
	4205H:	05H
Output:	4201H:	25H
	4202H:	22H
	4203H:	12H
	4204H:	10H
	4205H:	05H

CONCLUSION:

EXPERIMENT NO: 7

AIM: PART A: WRITE AN 8085 ASSEMBLY LANGUAGE PROGRAM TO CONVERT GIVEN BCD NUMBER INTO ITS EQUIVALENT BINARY NUMBER.

PROGRAM:

```
START:  LXI SP,FFFFH
        LXI H,2001H
        LXI B,2101H
        MOV A,M
        CALL BCDBIN
        STAX B
        HLT

BCDBIN: PUSH B
        PUSH D
        MOV B,A
        ANI 0F
        MOV C,A
        MOV A,B
        ANI F0
        JZ BCD1
        RRC
        RRC
        RRC
        RRC
        MOV D,A
        XRA A
        MVI E,0AH

SUM:    ADD E
        DCR D
        JNZ SUM

BCD1:   ADD C
        POP D
        POP B
        RET
```

OBSERVATION:

Input: 2001H: 72H
Output: 2101H: 48H

PART B: WRITE AN 8085 ASSEMBLY LANGUAGE PROGRAM TO CONVERT GIVEN BINARY NUMBER INTO ITS EQUIVALENT BCD NUMBER.

```
START: LXI SP, FFFFH
        LXI H,2001H
        MOV A, M
        CALL PWRTEN
        HLT

PWRTEN: LXI H,2011
        MVI B,64H
        CALL BINBCD
        MVI B,0AH
        CALL BINBCD
        MOV M,A
        RET

BINBCD: MVI M, FFH

NXTBUF: INR M
        SUB B
        JNC NXTBUF
        ADD B
        INX H
        RET
```

OBSERVATION:

Input: 2001H: FFH
Output: 2011H: 02H
                2012H: 05H
                2013H: 05H

CONCLUSION: