Lab F
Comparisons, Rotations

1. Create, assemble, make appropriate comments and save the following program:

```
        ORG     00H
        AJMP    Main

        ORG     100H
Main:   NOP
Watch:  MOV     A,P0            ;contents of Port 0 to Acc A
        CJNE    A,#0AAH,Watch   ;compare contents of Acc A to "mask" AAH
        NOP                     ;remain in watch loop if not equal to zero

        MOV     R0,#08H         ;R0 is loaded with 8H for counting
        MOV     A,#04H          ;Acc A loaded with pattern
        MOV     P1,A            ;display Acc A at Port 1
Spin:   RR      A               ;rotate to the right or clockwise
        MOV     P1,A            ;display Acc A at Port 1
        ACALL   Delay           ;go to subroutine
        DJNZ    R0,Spin         ;
        SJMP    Watch           ;continue to monitor Port 0

        ORG     200H
Delay:  NOP
        MOV     R3,#0FFH
Outer:  MOV     R2,#0FFH
Inner:  NOP
        DJNZ    R2,Inner
        DJNZ    R3,Outer
        RET
        END
```

2. Simulate the program using Debug.

3. Execute the program by entering the “key” very quickly. Recall that the switches operate in reverse. If the key is entered quickly, then the LEDS will appear to rotate one full rotation to the right or clockwise.

4. Modify the program so that the new “key” is CCH. Also, after the key is entered quickly, the LEDs connected to Port 1 must rotate two full rotations to the left or counterclockwise.

5. New commands:

CJNE	compare and jump if not equal
RR	rotate right