Lab D

DPTR, Data Tables, Movement of Data

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

```
;Initial skip
            ORG     00H
            AJMP    Main

;Main Body
            ORG     100H
Main:       NOP
            MOV     DPTR,#200H      ;point to data location
            MOV     R0,#06H         ;counter set for 6 items

Again:      NOP
            CLR     A
            MOVC    A,@A+DPTR       ;pick up data into Acca A
            MOV     P1,A            ;display data at Port 1
            ACALL   Delay
            INC     DPTR
            DJNZ    R0,Again
            SJMP    Main

;Data section
            ORG     200H
            DB      85H,84H,83H
            DB      42H,41H,40H

;Delay subroutine
            ORG     250H
Delay:      NOP
            MOV     R4,#07H
Rep:        MOV     R3,#0FFH
Outer:      MOV     R2,#0FFH
Inner:      NOP
            DJNZ    R2,Inner
            DJNZ    R3,Outer
            DJNZ    R4,Rep
            RET
            END
```

2. Execute the program and observe the operation.

3. Modify the program so as to create a count from 00H to 0FH, but only the odd numbers.

4. Using Atmel Flip, observe the memory map: (Buffers–Edit.)

5. Modify the program so that memory is optimized.

6. New commands or registers:

DPTR	Data pointer register
MOVC A,@A+DPTR	move data from table to code area
CLR	clear register or accumulator
DB	Define byte (and create table)
INC	Increment (DPTR or other register)