**1.Write an assembly program for blinking of LEDs of 8051. Display following patterns.**

a) Turn ON all LEDs connected to Port, wait for a short delay, then turn OFF all LEDs.

ORG 0000H ; Origin of program memory

MAIN:

MOV P2, #0FFH ; Turn ON all LEDs (P2 = 0xFF)

CALL DELAY ; Call delay subroutine

MOV P2, #00H ; Turn OFF all LEDs (P2 = 0x00)

CALL DELAY ; Call delay subroutine

SJMP MAIN ; Repeat forever

; Delay subroutine

DELAY:

MOV R3, #10 ; Outer loop count (equivalent to delay(10))

DELAY\_LOOP1:

MOV R2, #100 ; Inner loop count (adjust for timing)

DELAY\_LOOP2:

MOV R1, #100 ; Innermost loop count

DELAY\_LOOP3:

DJNZ R1, DELAY\_LOOP3

DJNZ R2, DELAY\_LOOP2

DJNZ R3, DELAY\_LOOP1

RET ; Return from subroutine

END

b) Turn ON alternate LEDs, wait for a delay, then turn OFF all LEDs again.

ORG 0000H ; Origin

MAIN:

MOV P2, #055H ; 01010101 - Turn ON alternate LEDs (P2.0, P2.2, etc.)

CALL DELAY ; Wait

MOV P2, #00H ; Turn OFF all LEDs

CALL DELAY ; Wait

SJMP MAIN ; Repeat forever

; Delay Routine

DELAY:

MOV R3, #10 ; Outer loop (adjust as needed)

DELAY\_LOOP1:

MOV R2, #100

DELAY\_LOOP2:

MOV R1, #100

DELAY\_LOOP3:

DJNZ R1, DELAY\_LOOP3

DJNZ R2, DELAY\_LOOP2

DJNZ R3, DELAY\_LOOP1

RET

END