Shaping Up of a 51-Code

- from NIL to its final version-

option I

|  |
| --- |
| ORG 0  start:  mov R1, #30H ; R1: data-blk-ptr  mov R3, #8 ; R3: loop-cnt  mov 40H, #1 ; (40H): OR-mask  mov A, #10H  next1:  mov @R1,A  inc R1  inc A  djnz R3, next1  ;------------------------  mov R3, #8  mov R1, #30H  next2:  mov A, @R1  orl A, 40H  mov @R1, A  xch A, 40H  rl A  xch A, 40H  inc R1  djnz R3, next2  jmp start  END |

option II

|  |
| --- |
| ORG 0  start:  mov R1, #30H ; R1: data-blk-ptr  mov R3, #8 ; R3: loop-cnt  mov 40H, #1 ; (40H): OR-mask  mov A, #10H  next:  mov @R1, A  inc A  xch A, 40H ; A:? (40H): ?  push E0H ; push A  orl A, @R1  xch A, @R1  pop A  rl A  xch A, 40H ; A:? (40H): ?  inc R1  djnz R3, next  jmp start  END |

option III

|  |
| --- |
| ORG 0  mask\_table:  DB 01H, 02H, 04H, 08H  DB 10H, 20H, 40H, 80H  start:  mov R1, #30H ; R1: data-blk-ptr  mov R3, #8 ; R3: loop-cnt  mov A, #10H  mov DPTR, mask\_table  next:  mov @R1, A  inc A  xch A, 40H  clr A  movc A, @A+DPTR  orl A, @R1  mov @R1, A  xch A, 40H  inc R1  inc DPTR  djnz, R3, next  jmp start  END  ; DIRECTIVE of the 51-assembler  ; problem with this codes??? |

option IV:

|  |
| --- |
| ORG 0  mask\_table:  DB 01H, 02H, 04H, 08H  DB 10H, 20H, 40H, 80H  data\_table:  DB 10H, 11H, 12H, 13H  DB 14H, 15H, 16H, 17H  start:  . . . ; code lines of your own??!!!  END |

[note]

(1) By now, one should already have one’s own copy of “51 instruction set” at hand, in which such information as

- instruction syntax,

- machine code,

- code length,

- execution time,

- etc.,

should be available.

(2) Using information in (a), derive the code image of each of the code option given above.

(3) Setting up the “I-cycle execution table” for each of the code option given above.