微算機原理及應用 (ET3403302)

Microcomputer Principles and Applications

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#Quiz 1

2023/10/04

Score (得分): 70 Student ID (學號): B11102123 Name (姓名): 陳柏辰

Examination Time (考試時間): 40 minutes

Fill Questions (填充題): 4 points for a space (一個空格 4 分。共 100 分)

1. A CPU with 16 address lines can provide a total of 65536 bytes of addressable memory.

2. 8051 microcontroller had 128 bytes of RAM, 4k bytes of on-chip ROM, 2 timers, one serial port, and 4 ports (each 8-bits wide) all on a single chip.

3. The END directive is used to indicate the end of the program.

4. The vast majority of 8051 registers are 8-bit registers. However, register ~~DPR~~ DPTR and PC are 16-bit.

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5. In the case of the 8051 family, the reset value of program counter is ~~ORG 0~~ 0 when the microcontroller is powered up.

6. In the case of the 8051 family, which port can be used for data bus? ~~Port 1~~ P0

7. Please write the full name of the following abbreviations(請寫出下列縮寫的全名):

(a) SoC: System on chip

(b) IoT: internet of ~~t~~ thing

(c) SFR: Special function register

(d) SP: Stack pointer

8. The 8051 provides a total of five distinct addressing modes. Please give an example of each of the "MOV" instructions. (請以"MOV"指令各舉出一個例子)

(1) Immediate constants: MOV A, #9CH

(2) Indexed addressing: MOV A, @DPTR+9CH

(3) Direct addressing: MOV A, 9CH

(4) Indirect addressing: MOV A, @9CH

9. Please show the register value after following instructions.

```
CLR C
MOV A, #9CH
ADD A, #84H
```

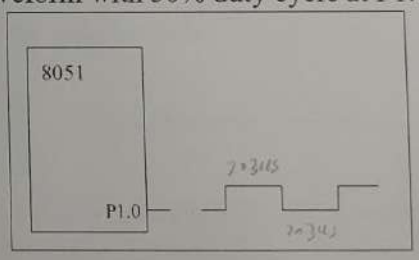
A = 20H, CY = 1, AC = 1, P = 1, OV = 1

10. Please write a one loop delay subroutine for CALL DELAY. If the crystal frequency is 12MHz, the time delay is 203μs.

```
DELAY:  MOV R1, #64H      ; 1 Machine Cycle
        DJNZ R1, $        ; 2 Machine Cycle
        RET               ; 2 Machine Cycle
```

11. Continue with previous question, please create a square waveform with 50% duty cycle at P1.0.

```
HERE:   SETB P1.0
        CALL DELAY
        CLR P1.0
        CALL DELAY
        SJMP HERE
```



12. Monitoring P2.2. If the P2.2 is high, A is set to #55H. Otherwise, A is set to #00H.

```
        SETB  P2.2        ;set P2.2 an input
LOOP:   MOV A, #00H
LOOP1:  JBNZ P2.2, LOOP   ;
        MOV A, #55H
        SJMP LOOP1
```