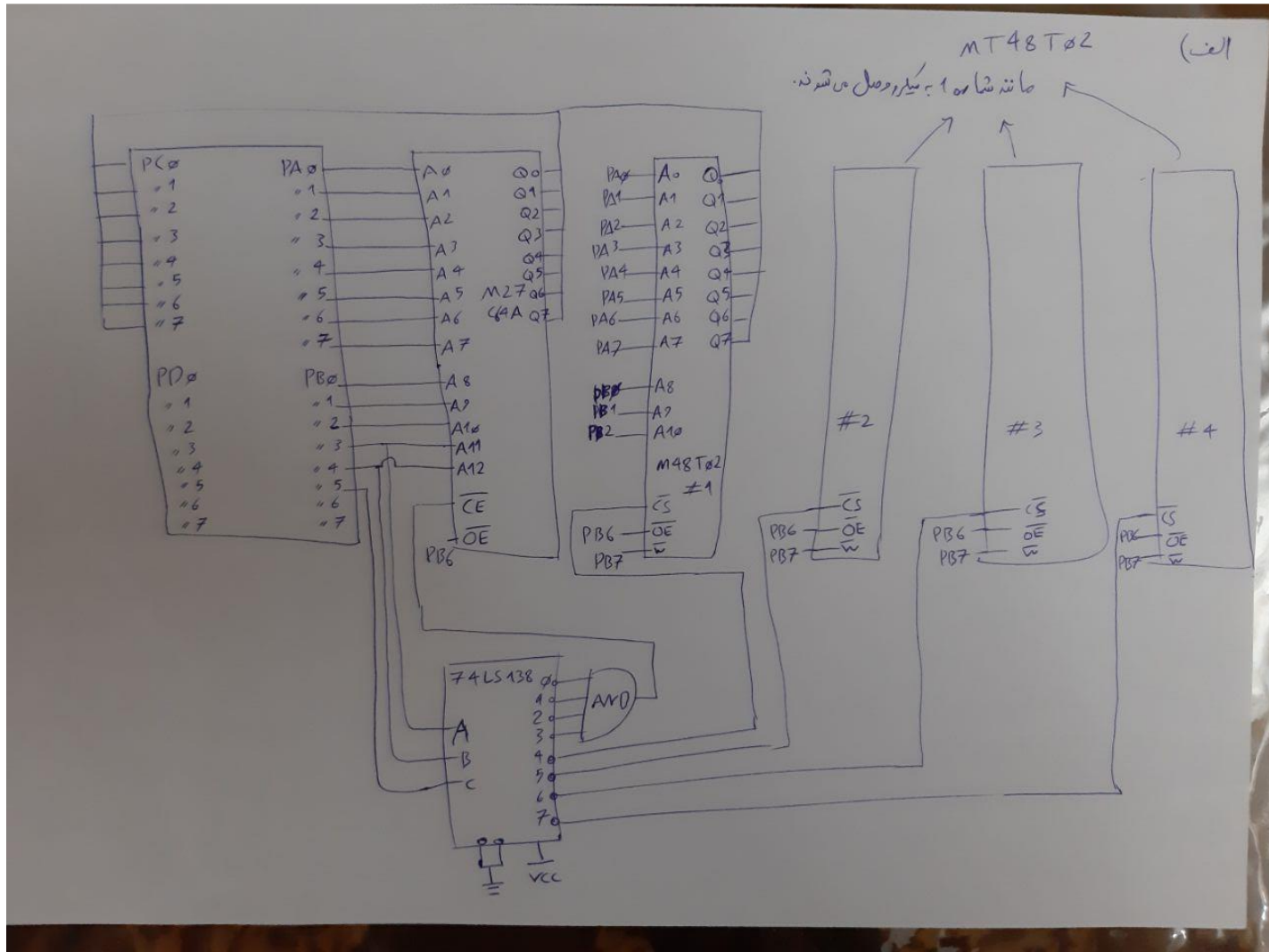


به نام خدا

تمرین ۹ ریز

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۹۵۳۱۰۱۴



M27C64A $\rightarrow t_{AVQV} \rightarrow$ زمان قرار گرفتن آدرس تا آماده شدن داده
 $\rightarrow t_{ELQV} \rightarrow$ زمان فعال شدن chip enable تا آماده شدن داده
 $\rightarrow t_{GLQV} \rightarrow$ " " " output enable " " زمان

M48T02 $\xrightarrow{\text{خواندن}} t_{AVQV}$
 $\xrightarrow{\text{نوشتن}} t_{WLWH} \rightarrow$ مدت زمان ضرر بردن \bar{W}
 $\rightarrow t_{DVWH} \rightarrow$ input valid to write enable high
 $\rightarrow t_{WHDX} \rightarrow$ write enable high to input transition

3 to 8 - 74LS138 (ج)

; Reset Vector

rjmp Start

;=====

; CODE SEGMENT

;=====

Start:

; Write your code here

Loop:

call READ

call WRITE

rjmp Loop

READ:

ldi r16,0x00 ;Address: Low Byte

ldi r17,0x15 ;Address: High Byte

ldi r18,0xFF

out DDRA,r18 ;PORTA is output

out DDRB,r18 ;PORTB is output

ldi r18,0x00

out DDRC,r18 ;PORTC is input

out PORTA,r16

andi r17,0x1F

out PORTB,r17

nop ;7 nop = 7 clocks = 7 * 62.5ns > tAVQV + 1.5 clocks = 300 + 1.5 * 62.5ns

nop

nop

nop

```
nop
nop
nop
in r0,PINC
ret
```

WRITE:

```
ldi r16,0x00 ;Address: Low Byte
ldi r17,0x25 ;Address: High Byte
ldi r20,0x90 ;Data
ldi r18,0xFF
out DDRA,r18 ;PORTA is output
out DDRB,r18 ;PORTB is output
out DDRC,r18 ;PORTC is output
out PORTC,r20
out PORTA,r16
andi r17,0x7F
ori r17,0x40 ;output disabled
out PORTB,r17
nop ;1 nop = 1 clock = 62.5ns > tWLWH = 20ns
sbi PORTB,7
nop ;1 nop = 1 clock = 62.5ns > tDVWH = 12ns
ret
```

;=====

RM48L952 16- and 32-Bit RISC Flash Microcontroller

3MB of Program Flash with ECC

256KB of RAM with ECC

64KB of Flash with ECC for Emulated

EEPROM

16-Bit External Memory Interface