تکلیف سری چهارم درس ریزپردازنده و زبان اسمبلی

یاسمن سادات میرمحمد

۹۴۳۱۰۲۲

---

1)

```
 rjmp  Start


Start:
    ; Write your code here
    ldi r16,(0<<PA0) | (0<<PA2)
    ldi r17,(1<<PA0)| (0<<PA2)
    out  PORTB,r16
    out  DDRB,r17



Loop:
IN r16,PINA
out PORTB,r16
    rjmp  Loop
```

---

2)

```
    rjmp  Start



Start:
```

```
; Write your code here
ldi r21,(0<<PA0)
ldi r22,(1<<PB0)
out DDRA, r21
out DDRB, r22


Loop:
IN r16,PINA
cpi r16,0b00000001
BREQ blink


    rjmp  Loop
blink:
 ldi r17,(1<<PB0)
 out  PORTB,r17
 rjmp delay
 ldi r17,(0<<PB0)
 out  PORTB,r17
 rjmp delay
rjmp Loop



DELAY:
LDI R18, 50
LOOP3: LDI R19, 255
LOOP2: LDI R20, 255
LOOP1: DEC R20
BRNE LOOP1 ;KEEP DECREASING R19
DEC R19
```

BRNE LOOP2 ;FOR EVERY DECREASE OF R18 REDO THE PREVIOUS LOOP

DEC R18

BRNE LOOP3   ;FOR EVERY DECREASE OF R17 REPEAT PREVIOUS LOOP

RET   ;RETURN TO PREVIOUS PC ADDRESS

راه دوم:

```
    rjmp  Start


Start:
    ; Write your code here
    ldi r21,(0<<PA0)
    ldi r22,(1<<PB0)
    out DDRA, r21
     out DDRB, r22


Loop:
IN r16,PINA
cpi r16,0b00000001
BREQ blink


    rjmp  Loop
blink:
 ldi r17,(1<<PB0)
 out  PORTB,r17
 rcall delay
```
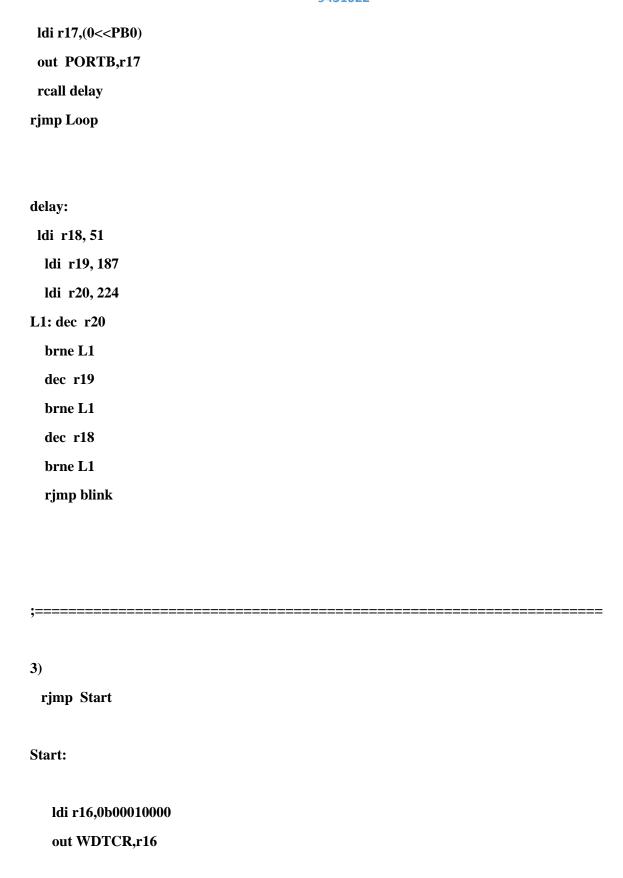
```
 ldi r17,(0<<PB0)

 out  PORTB,r17

 rcall delay

rjmp Loop



delay:

 ldi  r18, 51

  ldi  r19, 187

  ldi  r20, 224

L1: dec  r20

   brne L1

   dec  r19

   brne L1

   dec  r18

   brne L1

   rjmp blink
```

```
;===================================================================
```

3)

```
 rjmp  Start


Start:


   ldi r16,0b00010000

   out WDTCR,r16
```

```
ldi r16,0b00001000
out WDTCR,r16


ldi r16,0b00000110
out WDTCR,r16
```

```
Loop:
    rjmp  Loop
```

---

4)

```
  rjmp  Start
```

```
Start:
    ldi r17,(1<<PA0)
    out DDRA,r17
    ldi r18,(0<<PB0) |(0<<PB4)
    out DDRB,r18
```

```
Loop:
    ldi r20,0b00000000
    out WDTCR,r20
    IN r16,PINB
    cpi r16,0b00000001
    BREQ LED1
    rjmp  Loop
```

LED1:

    ; Write logical one to WDTOE and WDE

in r20, WDTCR

ori r20, (1<<WDTOE)|(1<<WDE)

out WDTCR, r20

    ldi r19, 0b00000001

    out PORTA, r19

    IN r21,PINB

    cpi r21,0b00010000

    BREQ Loop

    rjmp LED1