**تکلیف سری چهارم درس ریزپردازنده و زبان اسمبلی**

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**9431022**

**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**