**3. Time for code run at 1GHz:**

Estimate: [1+1+1+((1+1+1+1+3)x10)+1+2+1]x1/1000μs = 77/1000μs = 0.077μs

Real: [1+1+1+((1+1+1+1+3)x10-1)+1+2+1]x1/1000μs = 70/1000μs = 0.07μs

**4. Code explanation:**

(1) in r16, DDRC

(2) in r17, PORTC

(3) cbr r16, 0b00111111

(4) sbr r17, 0b00111111

(5) out DDRC, r16

(6) out PORTC, r17

(1)- loads input data from DDRC to register r16

(2)- loads input data from PORTC to register r17

(3)- define bits 5-0 as input from DDRC

(4)- define bits 5-0 as input from PORTC

(5)-output r16 to DDRC

(6)-output r17 to PORTC

This code configures PORTC (bits 5-0) as input using pull up resistors(uses the high bit) without modifying bits 6 and 7.