Homework 1

You want to setup the 16 bit timer (Timer 1) in out Atmega 328P microcontroller to produce a10 millisecond clock. Our 328P’s clock frequency is 16 MHz. We want the timer to run in Mode 4 (CTC). What is the value of the Target Timer Count if you use a prescaler value of 8? What is the resolution of the timer with a prescaler value of 8? What are the values of bits 0, 1, 2, 3, and 4 in register TCCR1B? What value is placed in register OCR1A? Which bit in the TIFR1 register goes high when the TCNT1 value equals the value in the OCR1A register? How do we reset that bit to zero after it goes high?

Target Timer Count = 19,999

Resolution = 500ns

Values of bits 0, 1, 2, 3, 4 of TCCR1B = 01010

OCR1A = 19,999

TIFR1 register bit = 1

How is the bit reset = TIFR1 = 1