ECE 375 PRELAB 7

Lab Time: Friday 2-4

Hao Truong

QUESTIONS

1. List the correct sequence of AVR assembly instructions needed to store the contents of registers R25:R24 into Timer/Counter1's 16 bit register, TCNT1. (You may assume that registers R25:R24 have been initialized to contain some 16-bit value)

```
out     TCNT1H, R25     ; write to high byte first
out     TCNT1L, R24     ; write to low byte second
```

2. List the correct sequence of AVR assembly instructions needed to load the contents of Timer/Counter1's 16 bit register, TCNT1, into registers R25:R24

```
in      R24, TCNT1L     ; read from low byte first
in      R25, TCNT1H     ; read from high byte second
```

3. Suppose Timer/Counter0 (an 8-bit timer) has been configured to operate in Normal mode, and with no prescaling (i.e., clkT0 = clkI/O = 16 MHz). The decimal value "128" has just been written into Timer/Counter0's 8-bit register, TCNT0. How long will it take for the TOV0 flag to become set? Give your answer as an amount of time, not as a number of cycles.

   Delay=(MAX+1-value)*prescale/(clkI/O)= (255 + 1 – 128) / 16 = 0.125 µs

REFERENCE

Computer Organization and Assembly Language Programming: Embedded Systems Perspective by Ben Lee (Draft)