



Department of Electrical and Computing Engineering

UNIVERSITY OF CONNECTICUT

**ECE 3411 Microprocessor Application Lab: Fall 2015**

## **Question V**

There are 3 short questions in this quiz. There are 2 pages in this quiz booklet. Answer each question according to the instructions given.

You have **5 minutes** to answer the questions.

If you find a question ambiguous, be sure to write down any assumptions you make.

**Be neat and legible.** If we can't understand your answer, we can't give you credit!

**Write your name in the space below.** Write your initials at the bottom of each page.

**THIS IS A CLOSED BOOK, CLOSED NOTES QUIZ.  
PLEASE TURN YOUR NETWORK DEVICES OFF.**

Any form of communication with other students is considered cheating and will merit an F as final grade in the course.

*Do not write in the box below*

<b>Total (xx/10)</b>

**Name:**

**Student ID:**

1. For Timer 0, which register actually serves as a counter and stores the ticks-count?
  - (a) TCNT0
  - (b) OCR0A
  - (c) OCR0B
  - (d) None of the above
  
2. For Timer 0 running in 'Clear Timer on Compare Match' (CTC) mode, the values of which two registers are compared with each other to determine a 'Compare Match'?
  - (a) OCR0B and TCCR0A
  - (b) OCR0A and TCNT0
  - (c) TIMSK0 and TCNT0
  - (d) None of the above
  
3. Assume an MCU with crystal clock frequency 16MHz with Timer0 initialized as follows:

```
TIMSK0 = 2;    // Enable Timer0 Compare Match interrupt
TCCR0A = 0x02; // Clear Timer on Compare Match (CTC) mode
TCCR0B = 0x03; // Prescaler @ 64 hence Timer0 increments every 4 microseconds
OCR0A  = X;    // Value that controls the rate of 'Compare Match' interrupt
```

Calculate the value of X that should be loaded into OCR0A register in order to generate the Compare Match interrupt after every 1ms.

X =

End of Question

Please double check that you wrote your name on the front of the question.

**Initials:**