## Quiz 3

(November 11th @ 5:30 pm)

## **PROBLEM 1 (20 PTS)**

Mark the correct option:

✓ The address where the Interrupt Vector is located is called: <u>Vector Address</u> <u>Return Address</u>

✓ The Real-Time Interrupt is a: <u>Maskable Interrupt</u> <u>Non-maskable Interrupt</u>

Complete:

✓ The Starting address of an Interrupt Service Routine is called \_\_\_\_\_\_

- HCS12 Timer: Briefly describe the following functions:
  - ✓ Input Capture Function:
  - ✓ Output Compare Function:

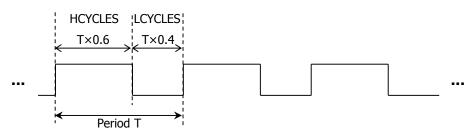
## PROBLEM 2 (50 PTS)

■ To create a delay using the Output Compare Channel 2, we add a number of cycles (DCYCLES) to TC2 and then wait until TCNT is equal to TC2. This happens when TLFG1 (2) =1. Assuming an E-clock of 24 MHz, complete the following table in order to generate the given delays. Maximize the pre-scale factor and minimize DYCLES (5 < DYCYCLES < 65536).

DCYCLES	Pre-scale Factor	Timer Clock Frequency	Delay
			200 us
			4 ms

## **PROBLEM 3 (30 PTS)**

 Provide the pre-scale factor, HCYCLES, and LCYCLES (in number of cycles) in order to generate an active high 4-kHz digital waveform using the Output Compare function of the HCS12D Timer. Assume E-clock=24 MHz.



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