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;ECE331 Quiz 7 10/1/2009  Name: Solution  CM#_____

;Fill in the missing blanks in the program below that uses the hardware timer
;       in interrupt-driven fashion to produce a 1 Hz square wave on PT5,
;       assuming a 2 MHz bus clock (as on our laboratory microcontroller modules.)

            XDEF Entry          ; export 'Entry' symbol
            ABSENTRY Entry      ; for absolute assembly: mark this as application entry
point

            INCLUDE 'mc9s12c128.inc'


            ORG   $4000
Entry:      LDS   #$1000        ; Initialize the stack pointer

            MOVB  #%110,TSCR2   ; Make Timer Tick Interval = 64/(2MHz) = 32
microsec                                                                  μs

            BSET  TIOS,%00100000 ; Make TC5 an output compare register

            BSET  TIE,%00100000 ; Enable TC5 interrupts

            MOVB  #%100,TCTL1   ; Make Channel 5 Output Compare Event Toggle
PT5

            BSET  TSCR1,%10000000 ; Enable Timer

            LDD   #15625        ;
            ADDD  TCNT

            STD   TC5           ; Schedule first output compare interrupt
                                ; to occur in 500 ms.

            MOVB  #%00100000,TFLG1 ; Clear TC5 interrupt flag

            CLI                 ; Globally enable interrupts
LoopHere:   BRA   LoopHere      ; Loop here while timer periodically interrupts
;********** Interrupt Service Routine Starts Here *************

TC5ISR      MOVB  #%00100000,TFLG1 ; Clear TC5 interrupt flag

            LDD   TC5           <-- either order !
            ADDD  #15625

            STD   TC5           ;Schedule next output compare event in 0.5 s
            RTI

            ORG   $FFFE         ;
            DC.W  Entry         ; Reset Vector
            ORG   $FFE4
            DC.W  TC5ISR        ;TC5 Interrupt Vector
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          15625
32μs | 500000
       32
       180
       160
        200
        192
         80
         64
         160
         160
```