Test 9. Working with debugger. Turn the LED on for the calculated period of time.

We will use MPLAB SIM debugging tool in the MPLAB IDE environment.

; *************************************************
; T1 Blinking the LED, connected to bit1 of PORT B,
; with delay equal to 0.75 s.
; Internal clock frequency 37 kHz, \( T_{cm} = 108 \ \mu s \)
; *************************************************

```
list p=16f628, r=hex ; declare processor, specifying the radix

#include p16f628.inc    ; include register label definitions
__config h'3f10'  ; configuration
                 ; information
                 ; for selected processor
errorlevel -302   ; turn off banking ; message
#define wy portb,1 ; the directive ; substitutes a text ; portb,1 with a string
#define lop .9  ;defines value of ; 9 decimal ; for register loop

cblock h'20' ; constant block

11, 12
endc

movlw h'07'    ;07 -> w
movwf cmcon     ; w->cmcon, comparators off
clrf porta     ; clear PORTA output latches
clrf portb     ;initializes PORTB
```
bsf status, rp0 ;bank 1  
bsf status, rp0 ;bank 0  
loop ; main loop  
bsf wy ; turn the LED on  
call delay ; call delay routine  
bcf wy ; turn off LED on RB1  
call delay ; call delay routine  
goto loop ; repeat main loop  

delay ; delay 0,75 s (9*256*3*108 μs=0.746s)  
movlw lop ; lop ->w  
movwf l2 ; initialize l2  
clf l1 ; initialize l1  

del decfsz l1, f ; decrement l1  
goto del ; if not 0, keep decrementing  
\n  l1  
decfsz l2, f ; decrement l2  
goto del ; if not 0, decrement l1 again  
return ; return to main routine  
end  

; **************************************************

We select Debugger>Select Tool pull down menu and check MPLAB SIM. Additional menu items will appear in the Debugger menu. The MPLAB SIM simulator is integrated into MPLAB IDE integrated development environment.

MPLAB SIM allows us to: