# **Lab-8**

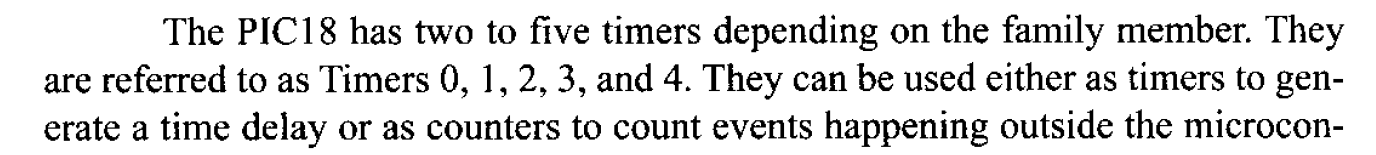
**PIC microcontroller Timer Programming using assembly language**

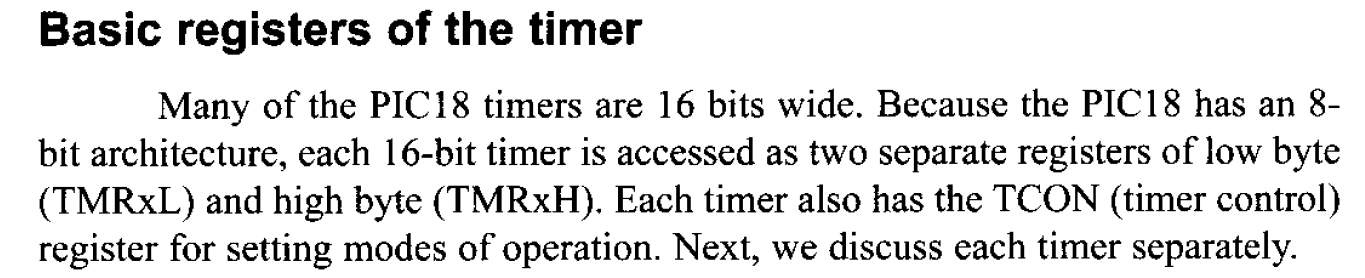
**Objective:**

In this lab students will learn

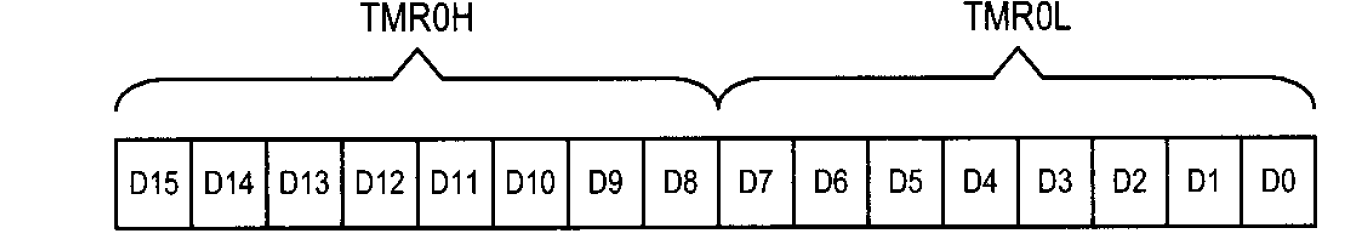
* How many timers are there in PIC18f4550
* How timers are used for introducing delays.

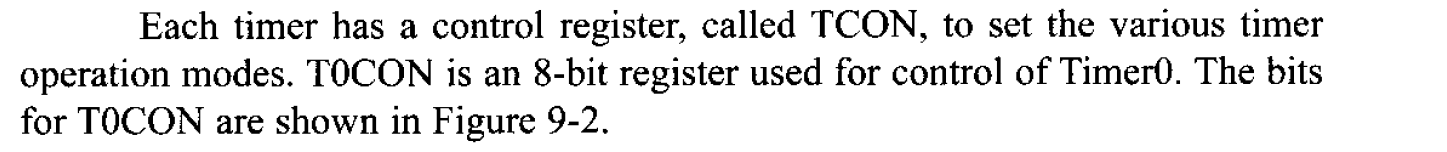
**Theory**

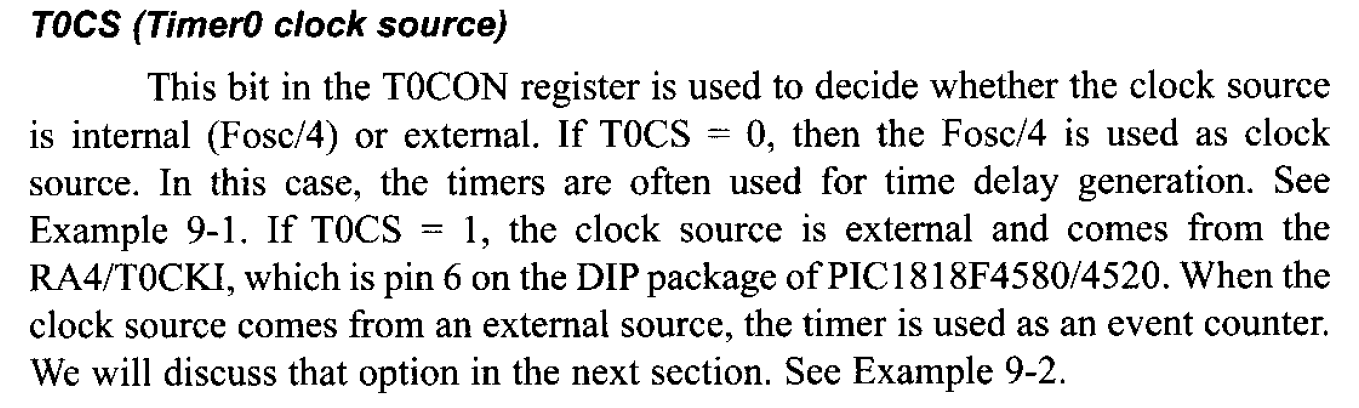
 

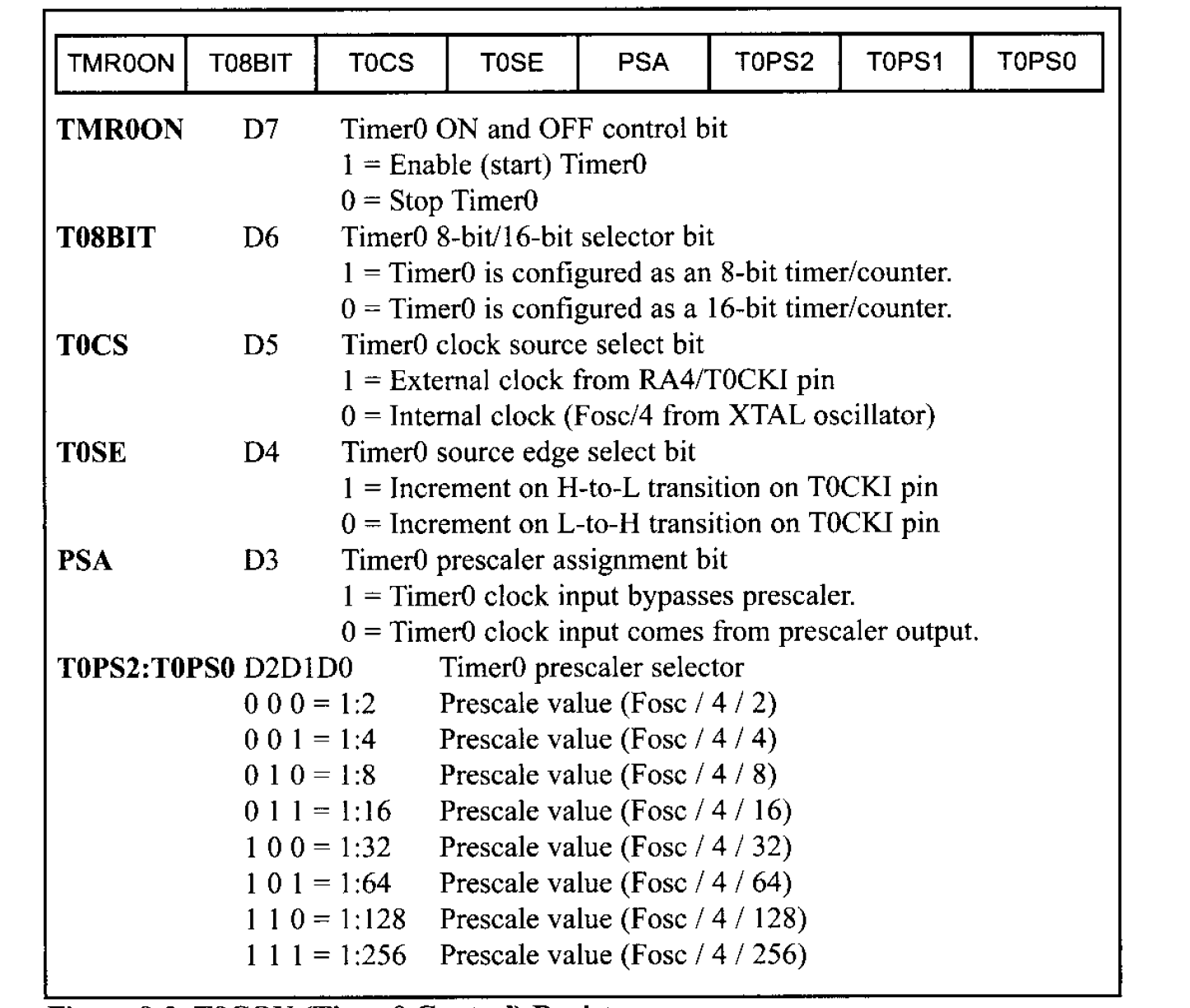


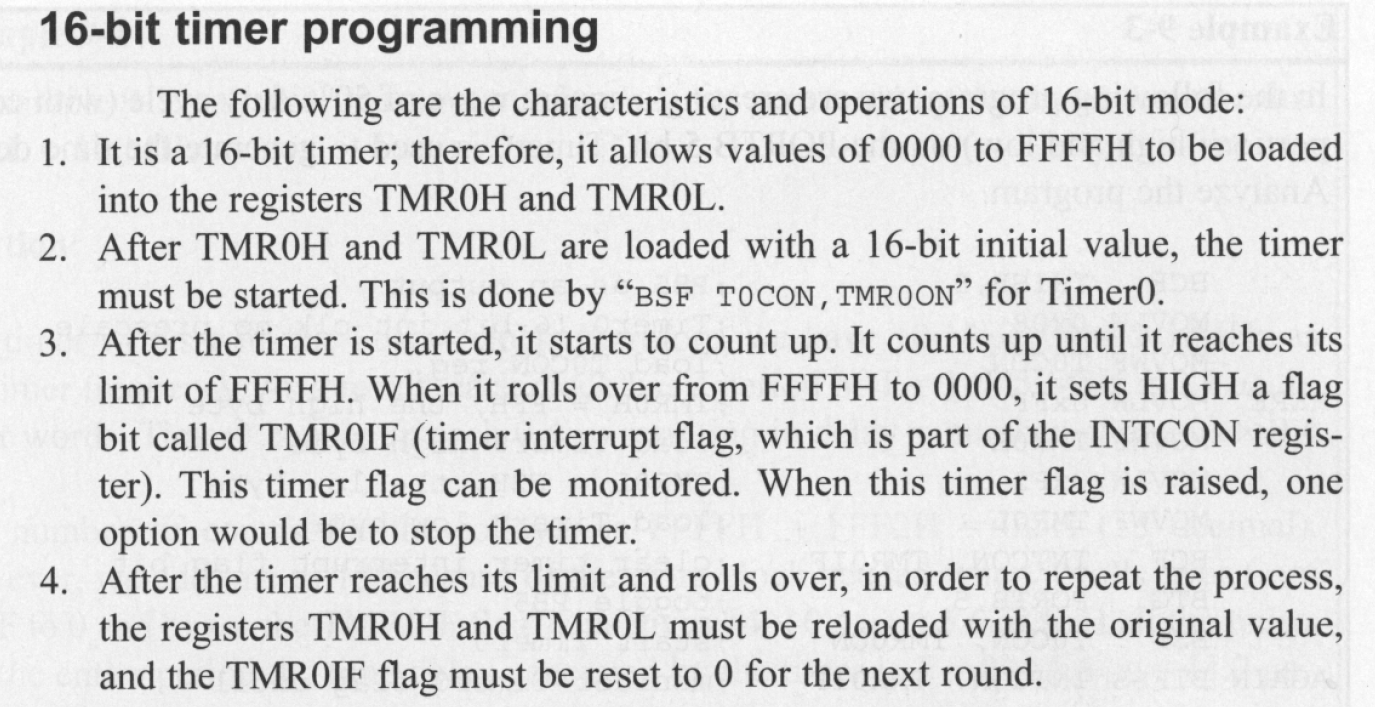
**Timer0 register and programming**



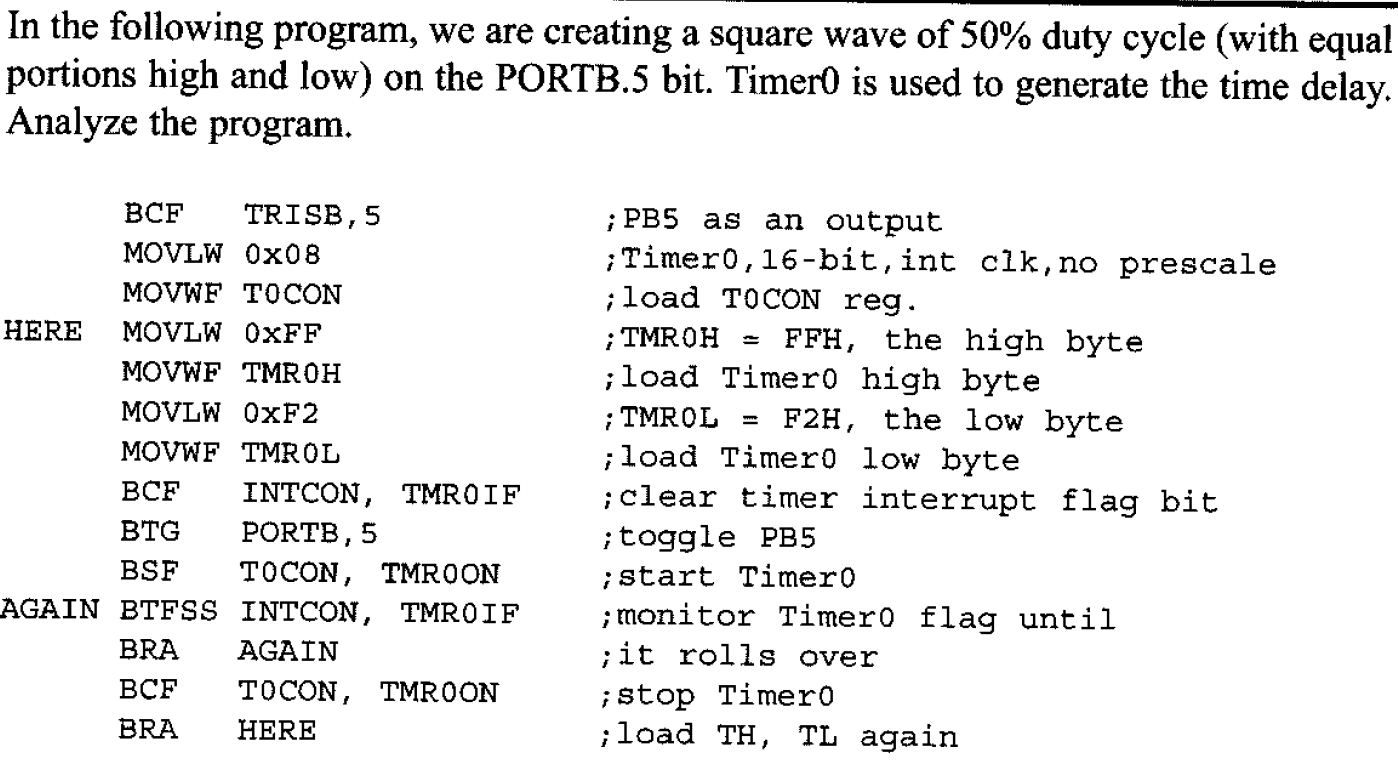








**Lab Exercise**



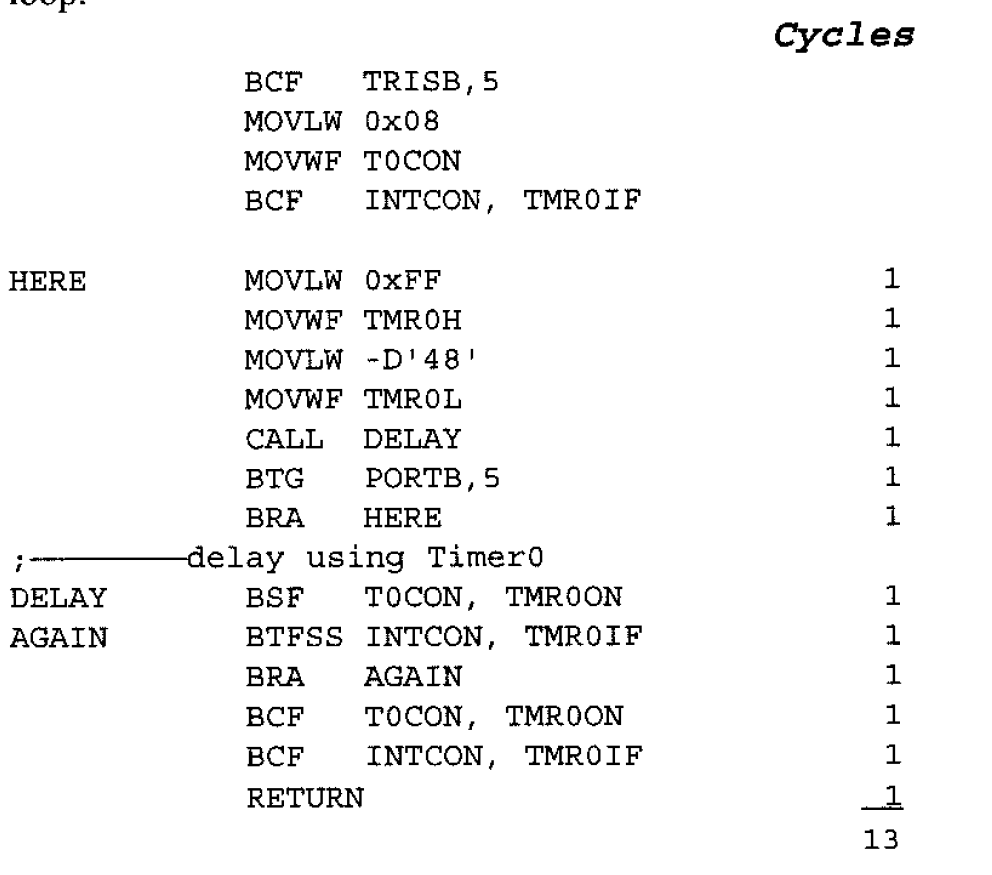
**Also calculate the delay introduced. [2]**

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**Write down the steps for programming the timer in 16 bit mode. [2]**

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**Calculate the frequency of square waveform generated at pin PORTB.5. Show Simulations on Proteus. [2]**



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**Write a program to generate a square waveform with a period of 20msec on pin PORTB.3. Show Simulations on Proteus and verify your calculations. [2]**

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**Generate a square waveform of 3KHz frequency on pin PORTB.3. Show Simulations on Proteus and verify your calculations. [2]**

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**What is the minimum frequency that you can generate using 16-bit timer mode? [2]**

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**Conclusion [3]**

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