Name: Tanmay Vig

Roll No: 19BCS061

Class: 3rd year B. Tech CSE

Experiment 10: Design and implement an Embedded System that toggle only pin P 1.5 continuously every 250ms using 8051 board. Take crystal frequency=11.0592 MHz.
1 Using timer 0, mode 1
2 Using timer 1, mode 2

Stuff Required: KEIL µVISION IDE, 8051 microcontrollers.

Program:

C code:

1. Timer 0 , Mode 1

```
#include<p89v51rd2.h>

sbit flag = P1^5;

void T1M2Delay(){

     TMOD=0x20;     // Timer 1, mode 2
     TH1=0x1A;              // 1A for 250micro sec
     TR1=1;

     while (TF1==0);

     TR1=0;
     TF1=0;

}

void T0M1Delay(void)
{
     TMOD=0x01;
     TL1=0xFE;
     TH1=0xA5; // A5FE F0R 25 m sec
     TR1=1;
     while (TF1==0);
     TR1=0;
     TF1=0;
```

```
}
void main(void)
{
     unsigned int x;
     while (1)
     {
            flag=~flag;

            for (x=0;x<10;x++) // 25 m sec
                   T0M1Delay();


     }
}
```

HEX code:

```
:10082800758920758D1AD28E308FFDC28EC28F22A7
:10081500758901758BFE758DA5D28E308FFDC28EC3
:03082500C28F225D
:10080000B295E4FFFE1208150FBF00010EEF640A57
:050810004E70F280EBC8
:03000000020838BB
:0C083800787FE4F6D8FD75810702080007
:00000001FF
```

2. Timer 1, Mode 2

```
#include<p89v51rd2.h>

sbit flag = P1^5;

void T1M2Delay(){

     TMOD=0x20;     // Timer 1, mode 2
     TH1=0x1A;              // 1A for 250micro sec
     TR1=1;

     while (TF1==0);

     TR1=0;
     TF1=0;

}

void T0M1Delay(void)
{
     TMOD=0x01;
     TL1=0xFE;
     TH1=0xA5; // A5FE F0R 25 m sec
     TR1=1;
     while (TF1==0);
     TR1=0;
     TF1=0;
}
void main(void)
{
     unsigned int x;
     while (1)
     {
```

```
            flag=~flag;

            for (x=0;x<1000;x++) // 250 micro sec
                   T1M2Delay();



    }
}
```

Hex Code:

:1008280075892075 8D1AD28E308FFDC28EC28F22A7

:10081500758901758BFE758DA5D28E308FFDC28EC3

:03082500C28F225D

:10080000B295E4FFFE1208280FBF00010EBE03F5EB

:05081000BFE8F280EBDF

:03000000020838BB

:0C083800787FE4F6D8FD75810702080007

:00000001FF

Result:

Pin P1.5 was toggled using both timers after 250ms.