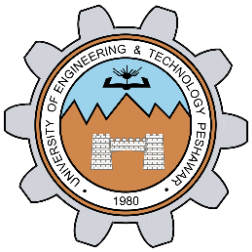
MICROPROCESSOR BASED SYSTEM DESIGN LAB

LAB 8



Spring 2021

CSE307L MBSD Lab

Submitted by: **Shah Raza**

Registration No. : **18PWCSE1658**

Class Section: **B**

"On my honor, as student of University of Engineering and Technology, I have neither given nor received unauthorized assistance on this academic work."

Student Signature: _____

Submitted to:

Engr. Amaad Khalil

Saturday, July 10, 2021

Department of Computer Systems Engineering

University of Engineering and Technology, Peshawar

Task 1:

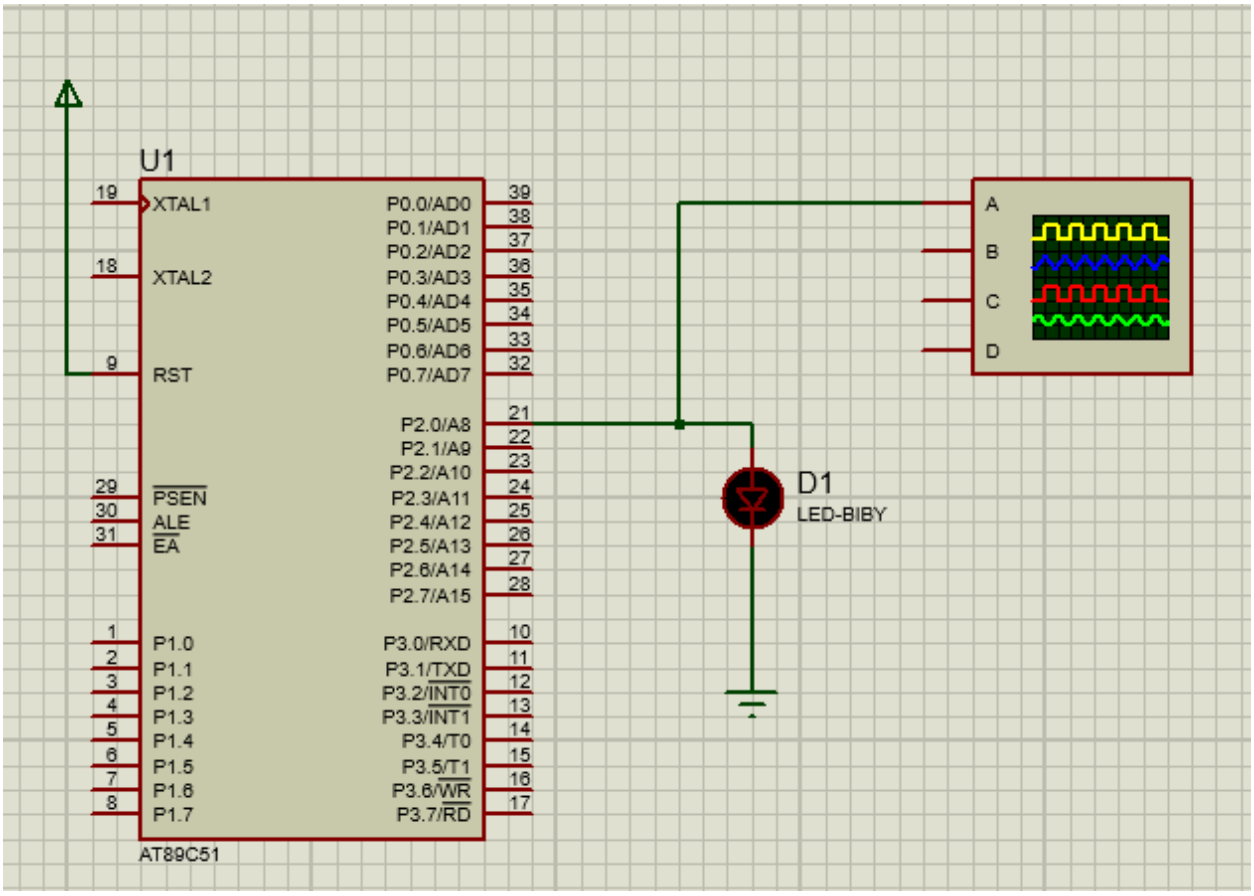
Write a program to generate 1 KHz signal with 75% duty cycle.

Code:

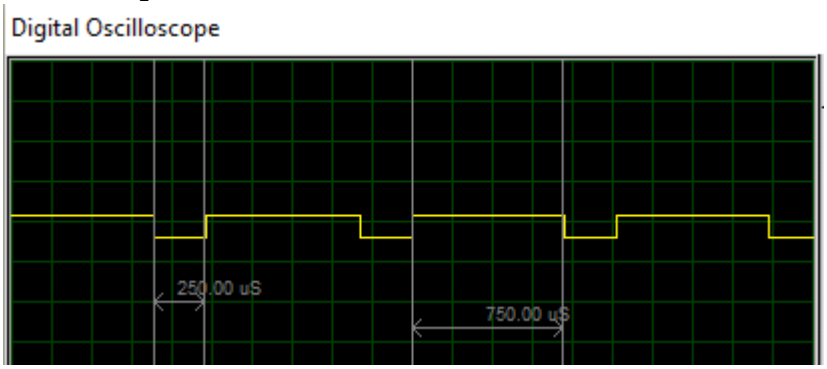
```
#include <reg51.h>
#include <stdio.h>

sbit Led = P2^0;


void timer() interrupt 1
{
  if(Led)
  {
    TH0 = 0xFF; //250 usec delay
    TL0 = 0x05;
  }
  else
  {
    TH0 = 0xFD;
    TL0 = 0x11;
  }
  Led = ~Led;


}

void init()
{
  TMOD = 0x1;
  EA = 1;
  ET0 = 1;
  TH0 = 0xFD; //750 usec delay
  TL0 = 0x11;
}

void main(void)
 {
  init();
   TR0 = 1;
  while (1)
    ;
 }
```

Output / Graphs / Plots / Results:

Schematic:



Oscilloscope Verification:



Task 2:

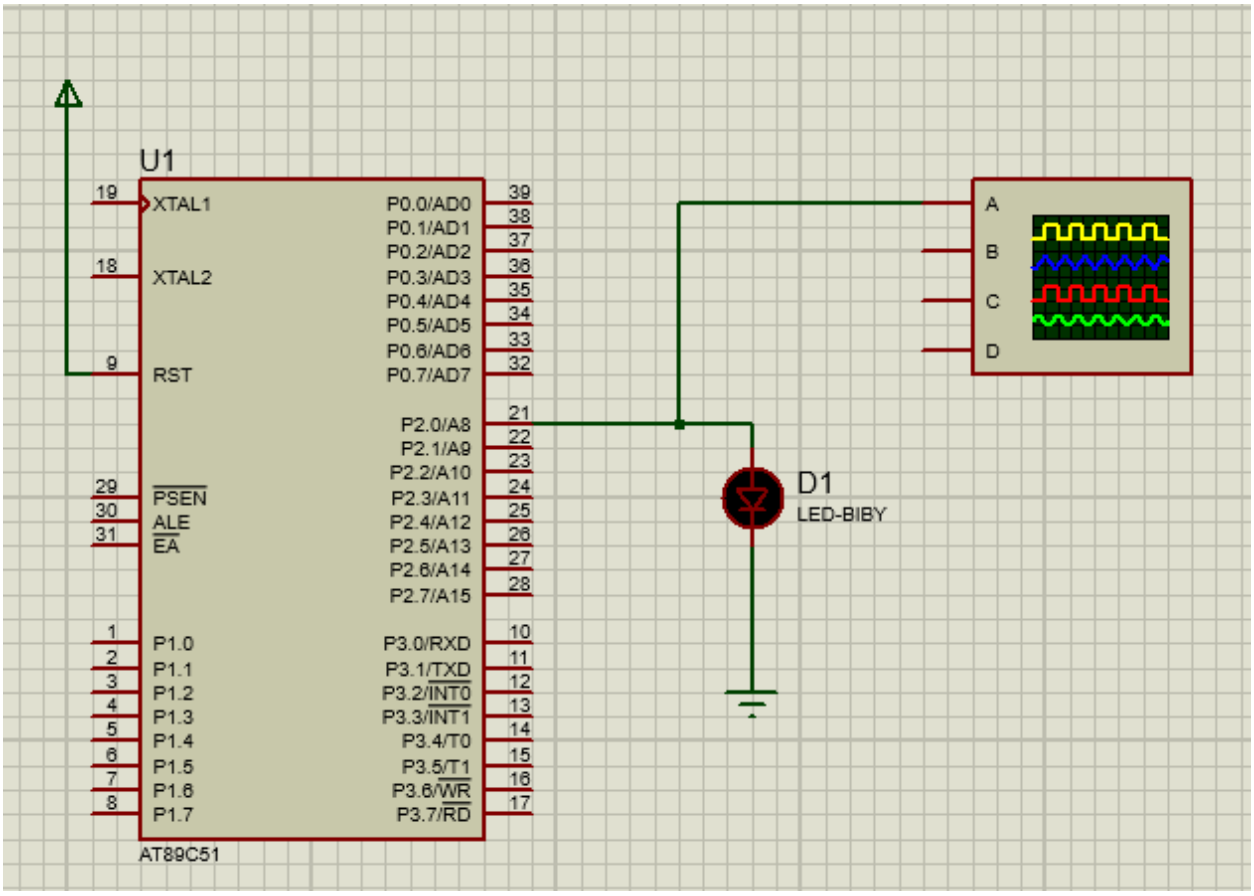
Write a program to generate 500 Hz signal with 30% duty cycle.

Code:

```
#include <reg51.h>
#include <stdio.h>

sbit Led = P2^0;


void timer() interrupt 1
{
  if(Led)
  {
    TH0 = 0xFA; //1400 usec delay
    TL0 = 0x87;
  }
  else
  {
    TH0 = 0xFD;
    TL0 = 0xA7;
  }
  Led = ~Led;


}

void init()
{
  TMOD = 0x1;
  EA = 1;
  ET0 = 1;
  TH0 = 0xFD; //600 usec delay
  TL0 = 0xA7;
}

void main(void)
 {
  init();
   TR0 = 1;
  while (1)
    ;
 }
```

Output / Graphs / Plots / Results:

Schematic:



Oscilloscope Verification:

Digital Oscilloscope