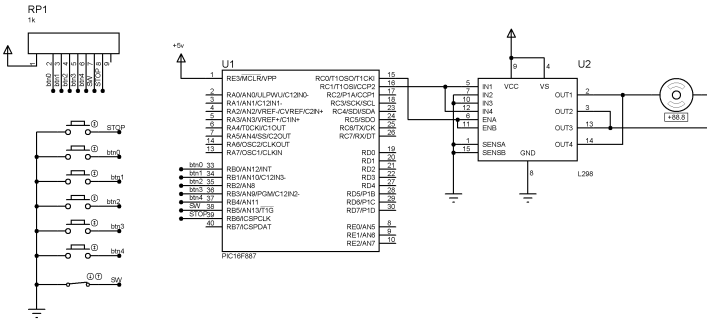




## Câu 2:



SSSSS

```
#include <16F887.h>
#DEVICE ADC=10
#FUSES NOWDT, PUT, HS, NOPROTECT, NOLVP
#USE DELAY(CLOCK = 10M)

#define ENABLE PIN_C0
#define BTN_1_6 PIN_B0
#define BTN_2_7 PIN_B1
#define BTN_3_8 PIN_B2
#define BTN_4_9 PIN_B3
#define BTN_5_10 PIN_B4
#define SW PIN_B5
#define BTN_STOP PIN_B6
```

```
UNSIGNED INT16 MAXSPEED=500;
```

```
VOID KT_PHIM()
```

```
{
//PHIM STOP
IF(INPUT(BTN_STOP) == 0) OUTPUT_LOW(ENABLE);

//PHIM BTN_1_6
IF(INPUT(BTN_1_6) == 0)
{
OUTPUT_HIGH(ENABLE);
IF(INPUT(SW) == 1) SET_PWM2_DUTY(MAXSPEED*6/10);
ELSE SET_PWM2_DUTY(MAXSPEED*1/10);
}

//PHIM BTN_2_7
IF(INPUT(BTN_2_7) == 0)
{
OUTPUT_HIGH(ENABLE);
IF(INPUT(SW) == 1) SET_PWM2_DUTY(MAXSPEED*7/10);
ELSE SET_PWM2_DUTY(MAXSPEED*2/10);
}

//PHIM BTN_3_8
IF(INPUT(BTN_3_8) == 0)
{
OUTPUT_HIGH(ENABLE);
IF(INPUT(SW) == 1) SET_PWM2_DUTY(MAXSPEED*8/10);
ELSE SET_PWM2_DUTY(MAXSPEED*3/10);
}
}
```

```
//PHIM BTN_4_9
IF(INPUT(BTN_4_9) == 0)
{
OUTPUT_HIGH(ENABLE);
IF(INPUT(SW) == 1) SET_PWM2_DUTY(MAXSPEED*9/10);
ELSE SET_PWM2_DUTY(MAXSPEED*4/10);
}

//PHIM BTN_5_10
IF(INPUT(BTN_5_10) == 0)
{
OUTPUT_HIGH(ENABLE);
IF(INPUT(SW) == 1) SET_PWM2_DUTY(MAXSPEED*10/10);
ELSE SET_PWM2_DUTY(MAXSPEED*5/10);
}
}
```

```
VOID MAIN()
{
/*
* Oscillator Frequency Fosc = 10000000
* Clock Frequency Fclk = 2500000
* PWM Freq = 1250 = 0.8ms
* Prescaler Value = 16
* PR2 = 124
* Maximum duty value = 500
*/
SET_TRIS_C(0X00);
OUTPUT_LOW(ENABLE);

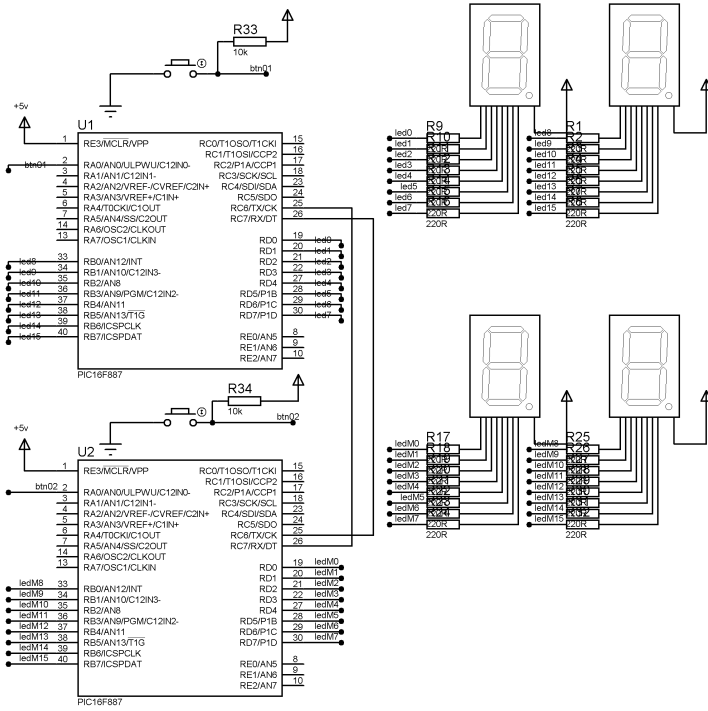
SETUP_CCP2(CCP_PWM);
SETUP_TIMER_2(T2_DIV_BY_16, 124, 16);
WHILE(TRUE)
{
KT_PHIM();
}
}
```

```
VOID MAIN()
```

```
{
/*
* Oscillator Frequency Fosc = 10000000
* Clock Frequency Fclk = 2500000
* PWM Freq = 1250 = 0.8ms
* Prescaler Value = 16
* PR2 = 124
* Maximum duty value = 500
*/
SET_TRIS_C(0X00);
OUTPUT_LOW(ENABLE);

SETUP_CCP2(CCP_PWM);
SETUP_TIMER_2(T2_DIV_BY_16, 124, 16);
WHILE(TRUE)
{
KT_PHIM();
}
}
```

### Câu 3:



### VĐK A:

```
#INCLUDE <TV_16F887.C>
#USE RS232(BAUD = 9600, XMIT=PIN_C6, RCV=PIN_C7)
```

```
#define SP PIN_A0
unsigned char DEM;
```

```
VOID PHIM_SP()
{
    IF(INPUT(SP) == 0)
    {
        DELAY_MS(20);
        IF(INPUT(SP) == 0)
        {
            //XU LY CHUC NANG
            DEM++;
            IF(DEM == 100) DEM = 1;

            //TRUYEN SO SAN PHAM
            PUTC(DEM);

            WHILE(INPUT(SP) == 0);
        }
    }
}
```

```
VOID MAIN()
{
    SET_TRIS_D(0X00);
    SET_TRIS_B(0X00);
    SET_TRIS_A(0X01);
```

```
DEM = 0;
WHILE(TRUE)
{
```

```
//NHAN DU LIEU
IF(KBHIT())
{
    DL_NHAN = GETCH();
    IF(DL_NHAN == 0)
    DEM = 0;
}

//KT PHIM
PHIM_SP();

//GIAI MA - HIEN THI
OUTPUT_D(MA7DOAN[DEM/10]);
OUTPUT_B(MA7DOAN[DEM%10]);
}
```

### VĐK B:

```
#INCLUDE <TV_16F887.C>
#USE RS232(BAUD = 9600, XMIT=PIN_C6, RCV=PIN_C7)
#define RST PIN_A0
unsigned char DEM;
```

```
VOID PHIM_RST()
{
    IF(INPUT(RST) == 0)
    {
        DELAY_MS(20);
        IF(INPUT(RST) == 0)
        {
            //XU LY CHUC NANG
            PUTC(0);
            DEM = 0;
            WHILE(INPUT(RST) == 0);
        }
    }
}
```

```
VOID MAIN()
{
    SET_TRIS_D(0X00);
    SET_TRIS_B(0X00);
    SET_TRIS_A(0X01);
    DEM = 0;
    OUTPUT_D(MA7DOAN[DEM/10]);
    OUTPUT_B(MA7DOAN[DEM%10]);
    WHILE(TRUE)
    {
        //NHAN DU LIEU
        IF(KBHIT()) DEM = GETCH();

        //GIAI MA - HIEN THI
        OUTPUT_D(MA7DOAN[DEM/10]);
        OUTPUT_B(MA7DOAN[DEM%10]);

        //KT PHIM
        PHIM_RST();
    }
}
```