**Program 1:**

#include <reg51.h>

void main(void){

TMOD=0x20; //use Timer 1, mode 2

TH1=0xFA; //4800 baud rate

SCON=0x50;

TR1=1;

while (1) {

SBUF='A'; //place value in buffer

while (TI==0); // watch the TI flag

TI=0;

}

}

**Program 2:**

#include <reg51.h>

void SerTx(unsigned char);

void main(void){

TMOD=0x20; //use Timer 1, mode 2

TH1=0xFD; //9600 baud rate

SCON=0x50;

TR1=1; //start timer

while (1) {

SerTx('Y');

SerTx('E');

SerTx('S');

}

}

void SerTx(unsigned char x){

SBUF=x; //place value in buffer

while (TI==0); //wait until transmitted

TI=0;

}

**Program 3:**

#include <reg51.h>

void main(void){

unsigned char mybyte;

TMOD=0x20; //use Timer 1, mode 2

TH1=0xFA; //4800 baud rate

SCON=0x50;

TR1=1; //start timer

while (1) { //repeat forever

while (RI==0); //wait to receive

mybyte=SBUF; //save value

P1=mybyte; //write value to port

RI=0;

}

}

**Program 4:**

#include <reg51.h> /\* Include x51 header file \*/

void UART\_Init()

{

TMOD = 0x20; /\* Timer 1, 8-bit auto reload mode \*/

TH1 = 0xFD; /\* Load value for 9600 baud rate \*/

SCON = 0x50; /\* Mode 1, reception enable \*/

TR1 = 1; /\* Start timer 1 \*/

}

void Transmit\_data(char tx\_data)

{

SBUF = tx\_data; /\* Load char in SBUF register \*/

while (TI==0); /\* Wait until stop bit transmit \*/

TI = 0; /\* Clear TI flag \*/

}

void String(char \*str)

{

int i;

for(i=0;str[i]!=0;i++) /\* Send each char of string till the NULL \*/

{

Transmit\_data(str[i]); /\* Call transmit data function \*/

}

}

void main()

{

UART\_Init(); /\* UART initialize function \*/

String("test"); /\* Transmit 'test' \*/

while(1);

}

**Program5**

#include <reg51.h>

sbit MYSW=P2^0; //input switch

void main(void){

unsigned char z;

unsigned char Mess1[]="Normal Speed";

unsigned char Mess2[]="High Speed";

TMOD=0x20; //use Timer 1, mode 2

TH1=0xFF; //28800 for normal

SCON=0x50;

TR1=1; //start timer

if(MYSW==0) {

for (z=0;z<12;z++) {

SBUF=Mess1[z]; //place value in buffer

while(TI==0); //wait for transmit

TI=0;

}

}

else {

PCON=PCON|0x80; //for high speed of 56K

for (z=0;z<10;z++) {

SBUF=Mess2[z]; //place value in buffer

while(TI==0); //wait for transmit

TI=0;

}

}