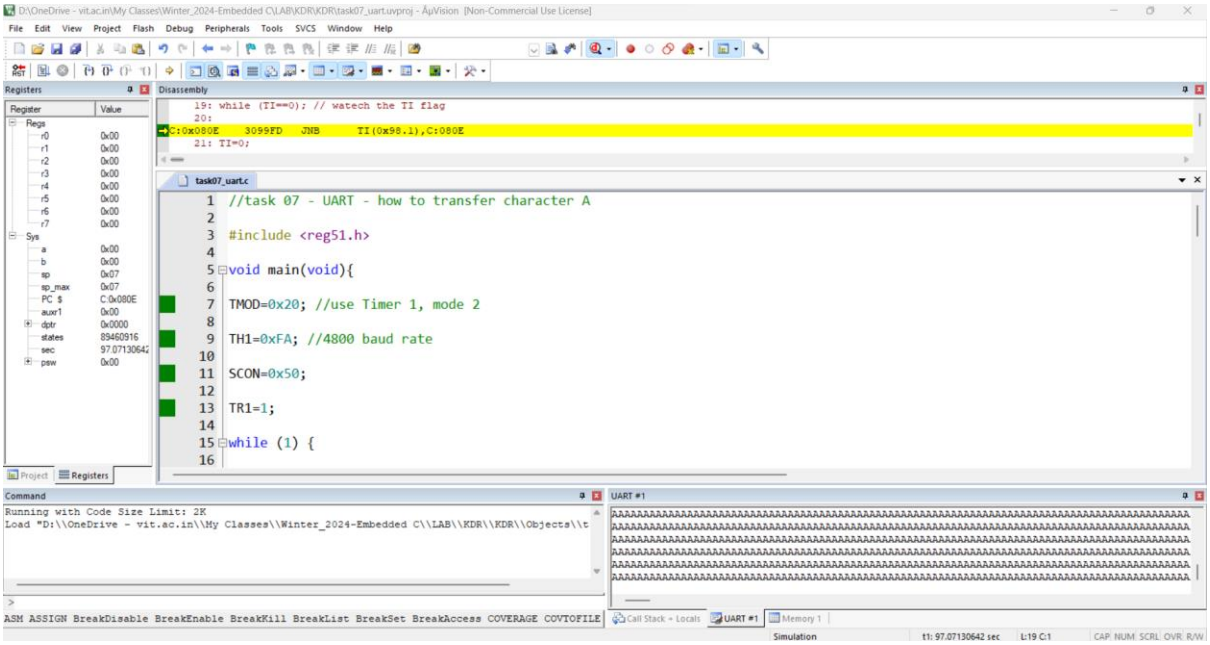
Embedded C Programming
Laboratory 7
Programs on Serial Communication

Task 1:
Write a C program for 8051 to transfer the letter "A" serially at 4800 baud continuously. Use 8-bit data and 1 stop bit.

```
#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); // watech the TI flag

TI=0;

}

}
```

Output:



Task 2:

Write a C program for 8051 to transfer the letter "G" serially at 9600 baud rate continuously. Use 8-bit data and 1 stop bit.

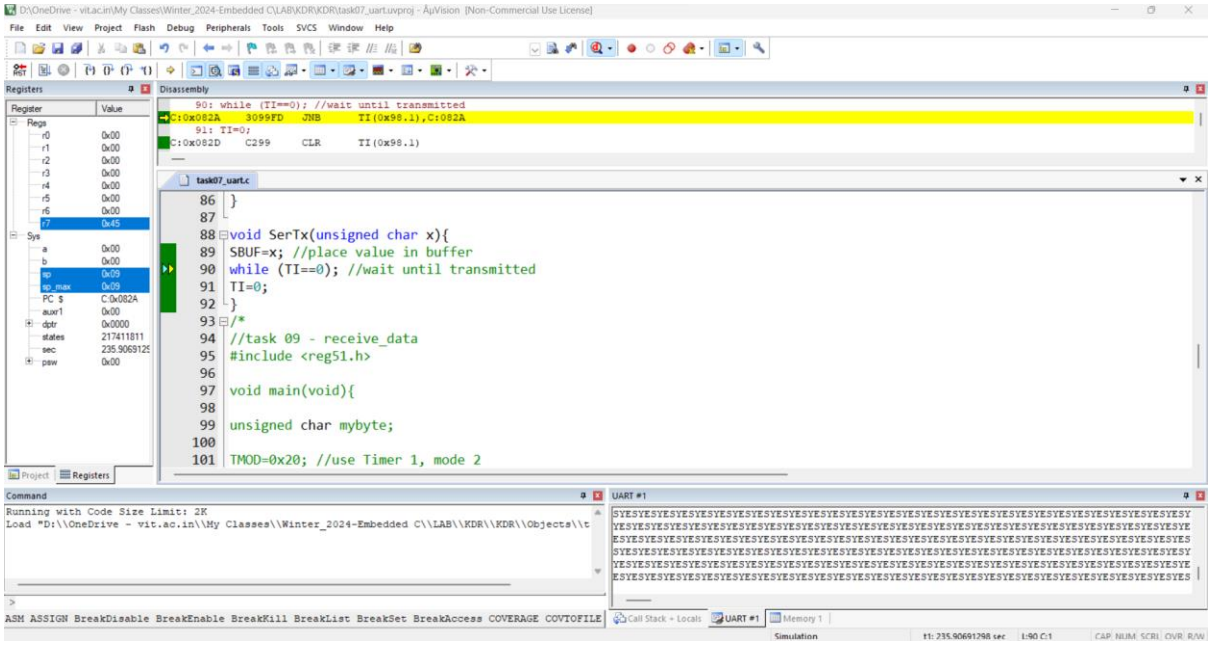
Task 3:

Write an 8051 C program to transfer the message "YES" serially at 9600 baud, 8-bit data, 1 stop bit. Do this continuously.

```
#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;
}
```

Output:



Task 4:

Write an 8051 C program to transfer the message “ROAR” serially at 4800 baud, 8-bit data, 1 stop bit. Do this continuously.

Task 5:

Program 8051 in C to receive bytes of data serially and put them in P1. Set the baud rate at 4800, 8-bit data, and 1 stop bit.

```
#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;

}

}
```

Output: