Experiment no 1(a)

AIM - Solution of First-Order Differential Equations (LR circuit)

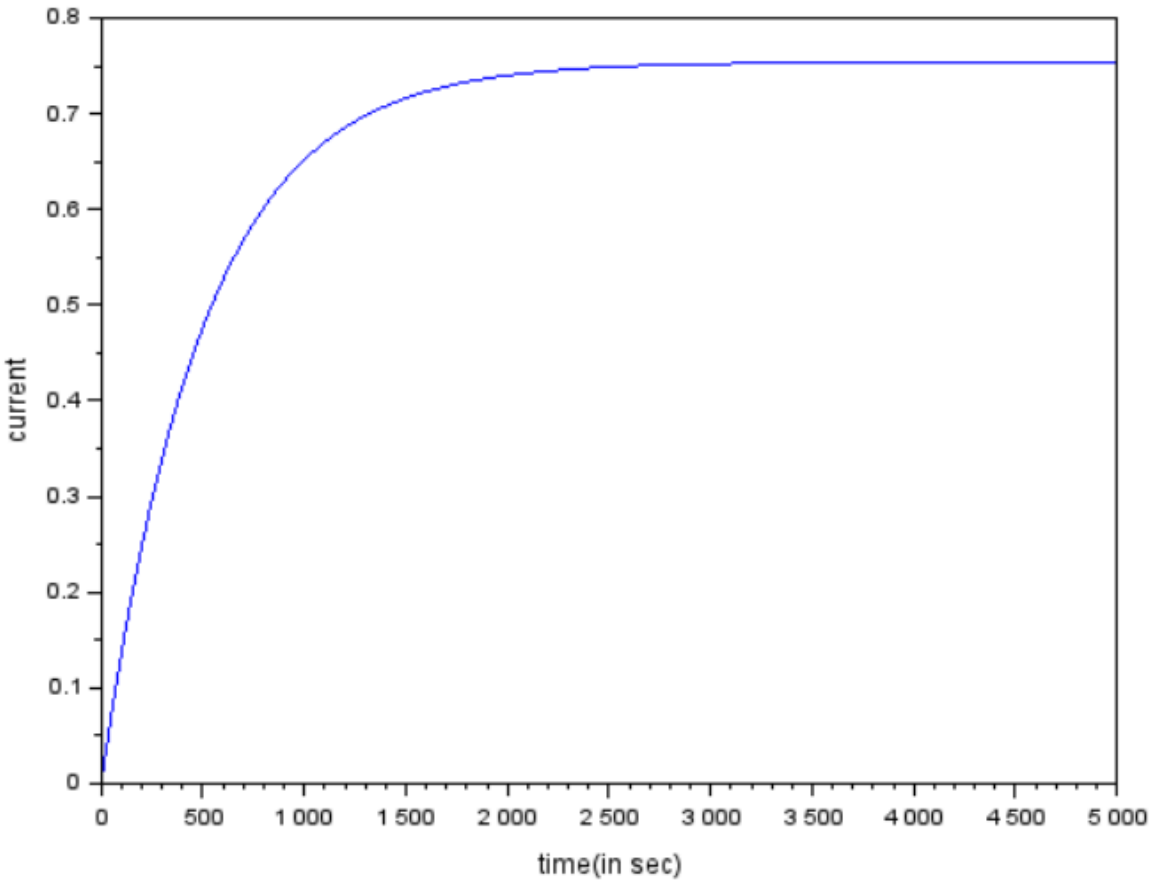
Apparatus - Scilab Software

Program Code -

```
clf;
clc;
clear

disp("prattayaya amrit")
disp("13601")

//Vin = Vc + Vr
//di/dt = (dVin/dt - i/C)/R
//taking input a,x,y from user
A=input("Enter the value of Capacitor (in Farad): ")
X=input("Enter the value of Resistor (in Ohm): ")
Y=input("Enter the value of Peak Value (in Volt): ")
f=(A*X)^-1;
//defining function
function idas=myode(t, i, dv)
    idas=(dv-i/A)/X
endfunction
//defining initial values
i0=0;
t0=0;
t=0 : 0.0001/f : 10/f;
// calling diff function to differenciate Vin
dv=Y*diff(sin((2*%pi*f)*t))/(0.0001/f);
//calling ode
i=ode(i0,t0,t,myode);
plot(t,i);
//to add legend title and axis labels
xlabel("time(in sec)")
ylabel("current")
```


0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
current
0
500
1 000
1 500
2 000
2 500
3 000
3 500
4 000
4 500
5 000
time(in sec)