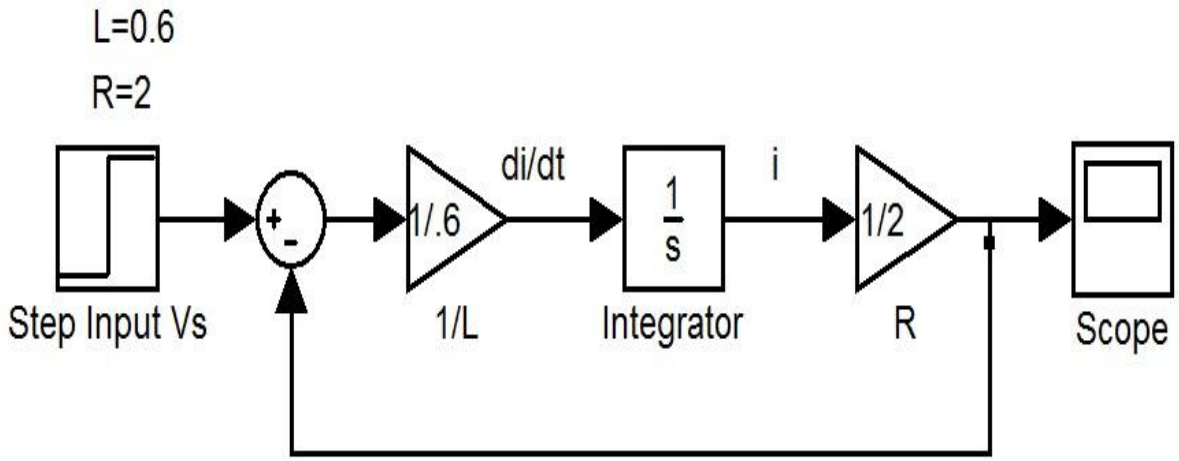
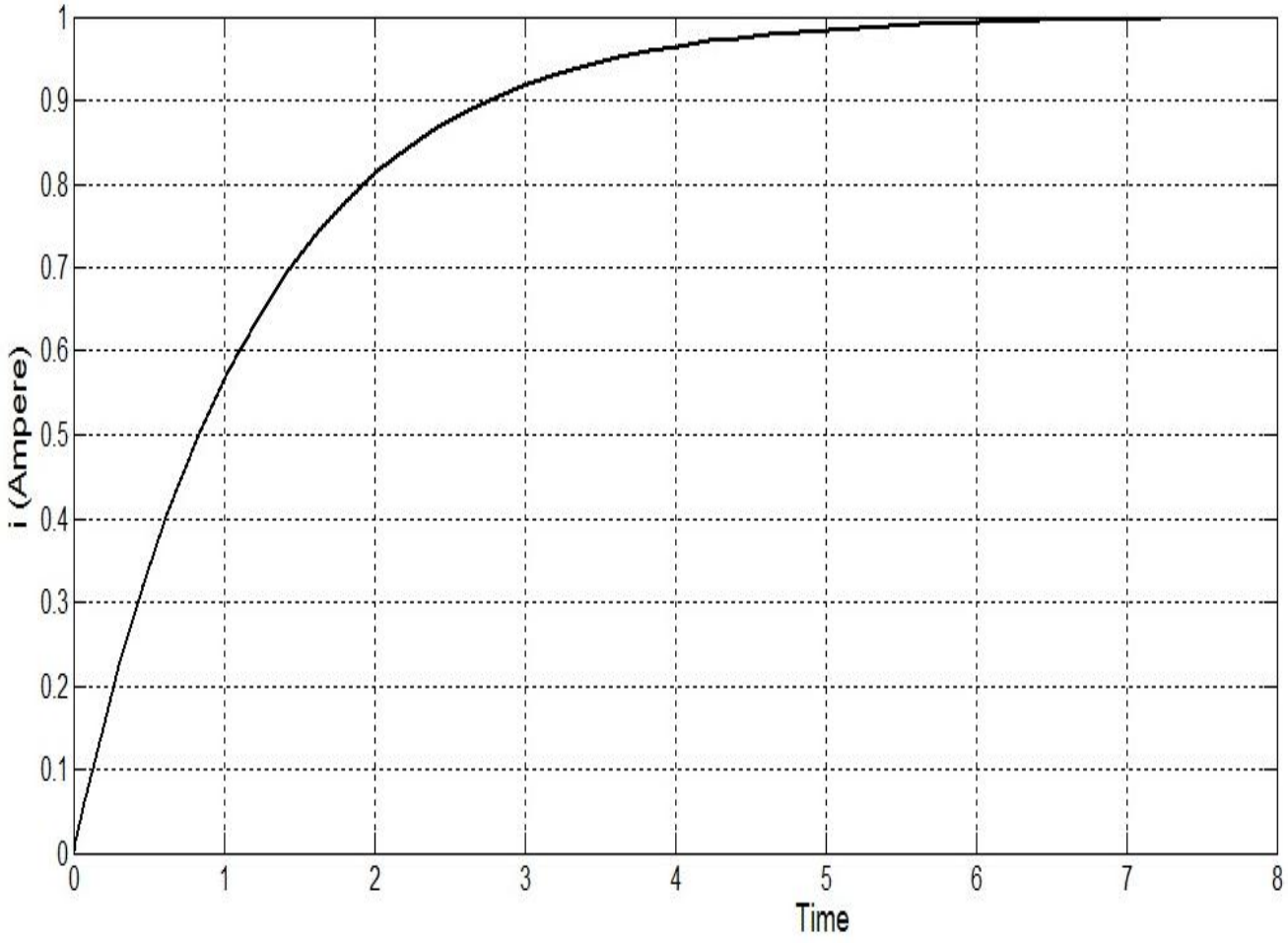
Aim: To Simulate Series RL Circuit.

Circuit Diagram:

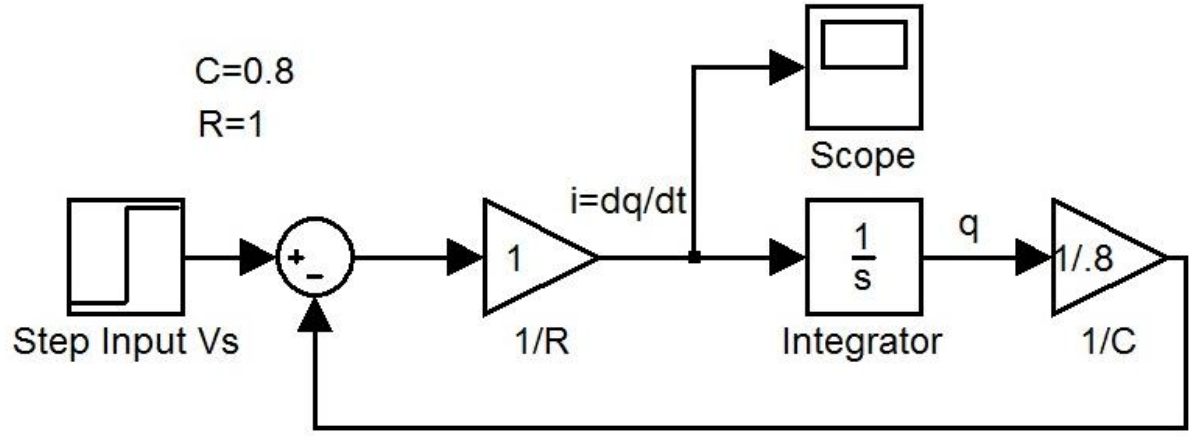


Output:

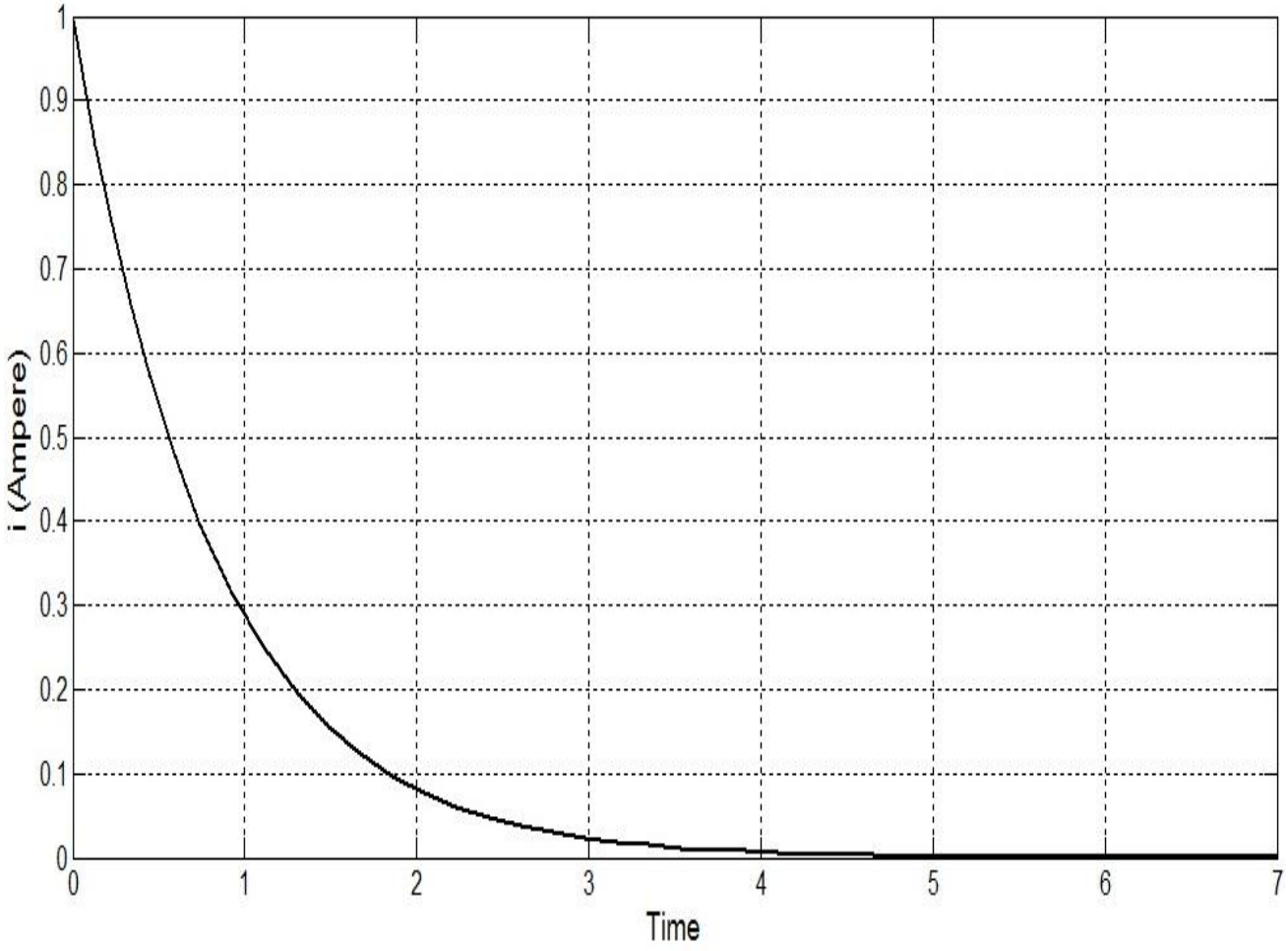


Aim: To Simulate Series RC Circuit.

Circuit Diagram:

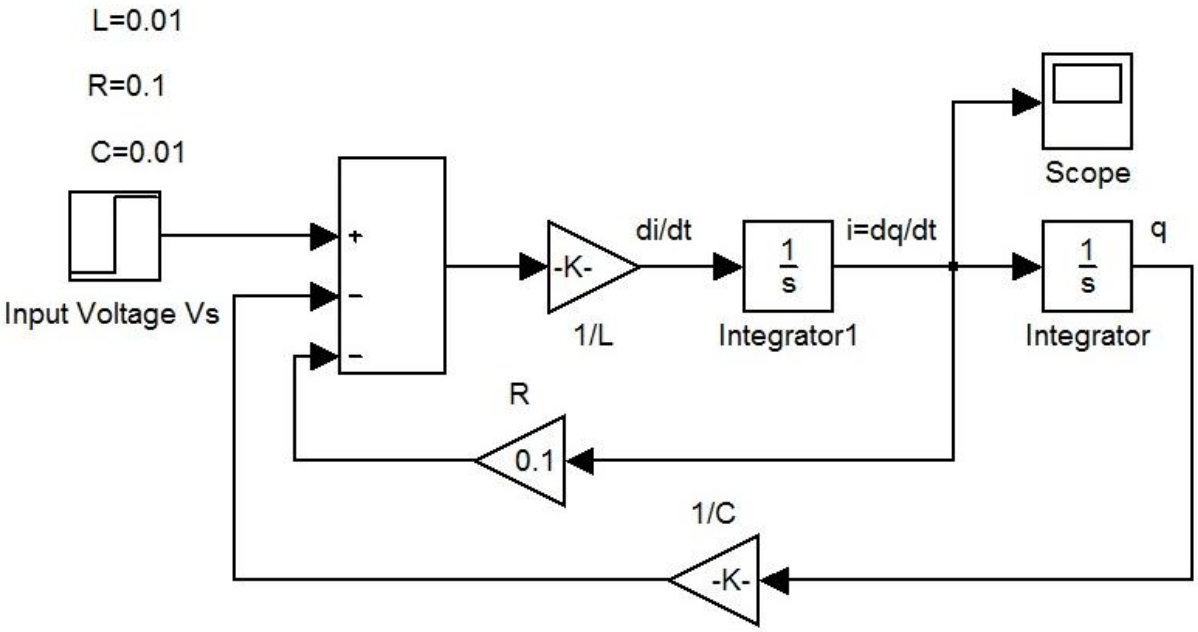


Output:

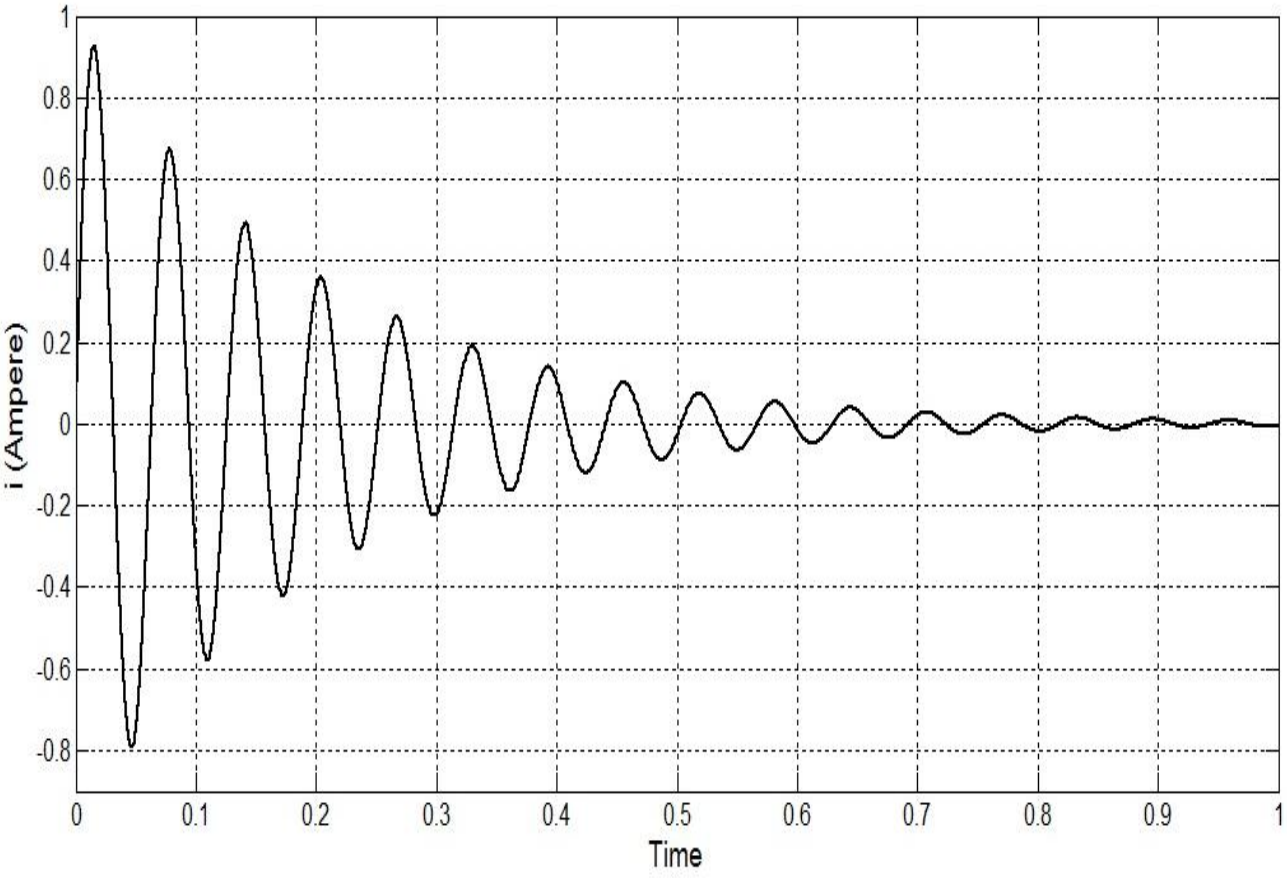


Aim: To Simulate Series RLC Circuit.

Circuit Diagram:



Output:



Aim: To analysis performance of Short Transmission line by using MATLAB.

Program:

```
clc
clear all
%SHORT TRANSMISSION LINE%
Pr=input('Receiving End Power(MW): ');
Vr=input('Receiving End Voltage(KV): ');
pfr=input('Receiving End Power Factor: ');
r=input('Resistance per Km(ohm): ');
x=input('Reactance per Km(ohm): ');
L=input('Total Length of Line(Km): ');
f=input('Supply Frequency(Hz): ');

%TRANSMISSION LINE PARAMETER%
R=(r*L)
X=(x*L)

%RECEIVING END VOLTAGE%
Vrph=(Vr/sqrt(3))
Ir=Pr/(3*Vrph*pfr)
phi=acos(pfr)          % Cos^-1Ø %
sphi=sin(phi)          % SinØ %
Irnew=abs(Ir)*(pfr-((1*j)*sphi))

%VOLTAGE REGULATION%
A=1
B=R+(j*X)
C=0
D=1
```

```
Vs=(A*Vrph)+(B*Irnew)
VolgReg=((abs(Vs)-Vrph)/Vrph)*100

%EFFICIENCY%
Is=Irnew
u=angle(Vs)
v=angle(Is)
pfs=cos(u-v)
Vsnew=sqrt(3)*abs(Vs)
Ps=sqrt(3)*Vsnew*abs(Is)*pfs
Efficiency=(Pr/Ps)*100
```

Output:

```
Receiving End Power(MW): 12.75
Receiving End Voltage(KV): 33
Receiving End Power Factor: 0.85
Resistance per Km(ohm): 0.24
Reactance per Km(ohm): 0.65
Total Length of Line(Km): 8
Supply Frequency(Hz): 50
R = 1.9200
X = 5.2000
Vrph = 19.0526
Ir = 0.2624
phi = 0.5548
sphi = 0.5268
Irnew = 0.2231 - 0.1382i
A = 1
B = 1.9200 + 5.2000i
```

C = 0

D = 1

Vs = 20.1997 + 0.8945i

VolgReg = 6.1249

Is = 0.2231 - 0.1382i

u = 0.0443

v = -0.5548

pfs = 0.8259

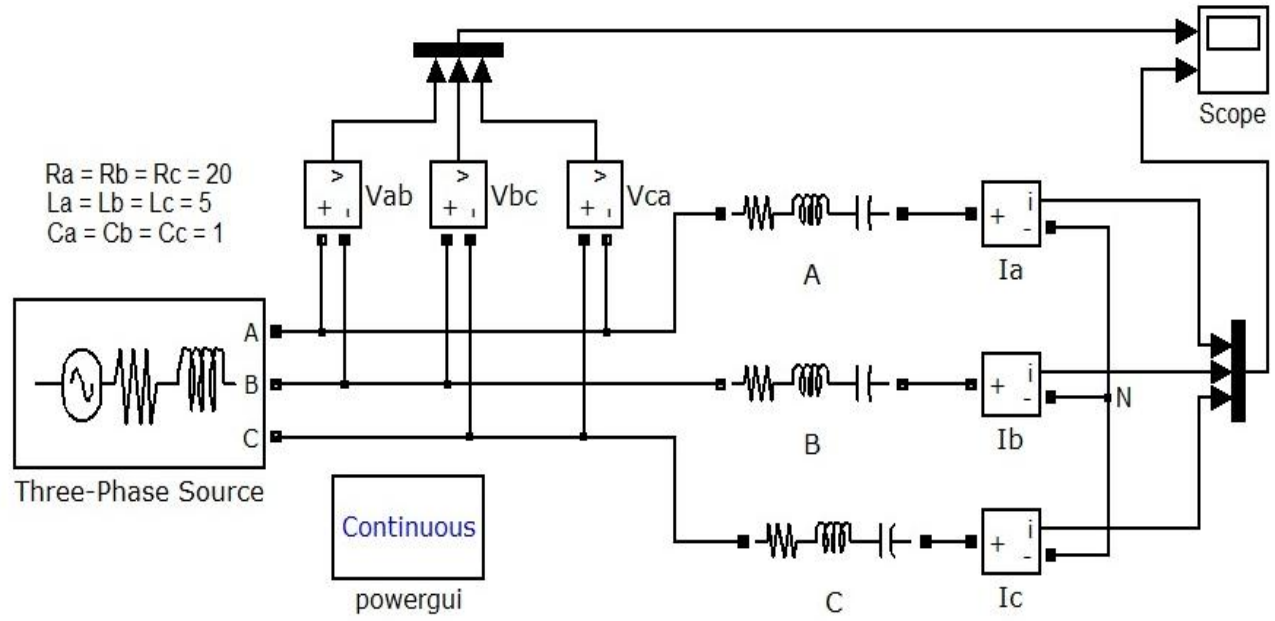
Vsnew = 35.0212

Ps = 13.1467

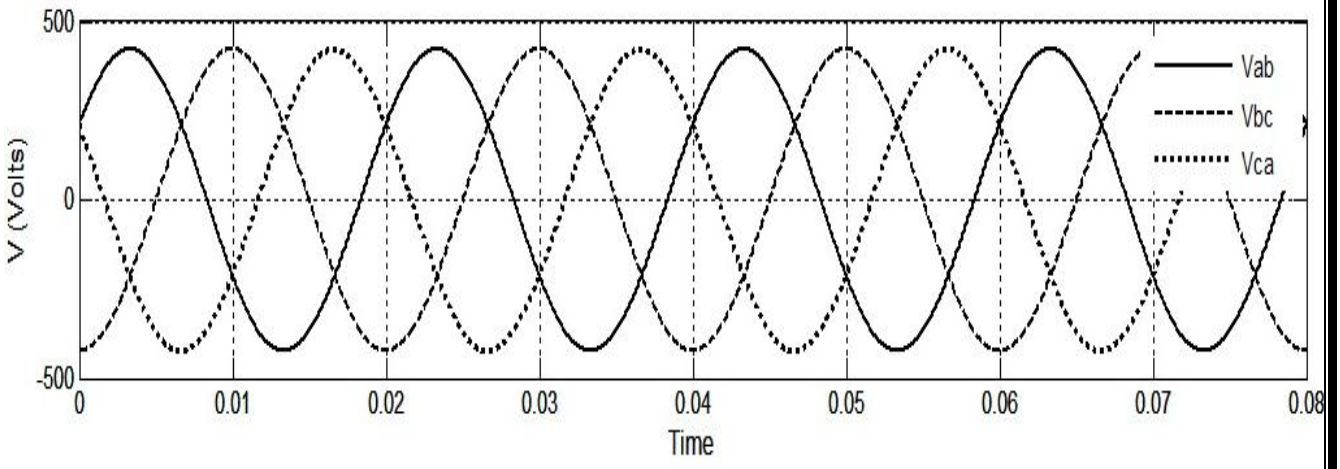
Efficiency = 96.9826

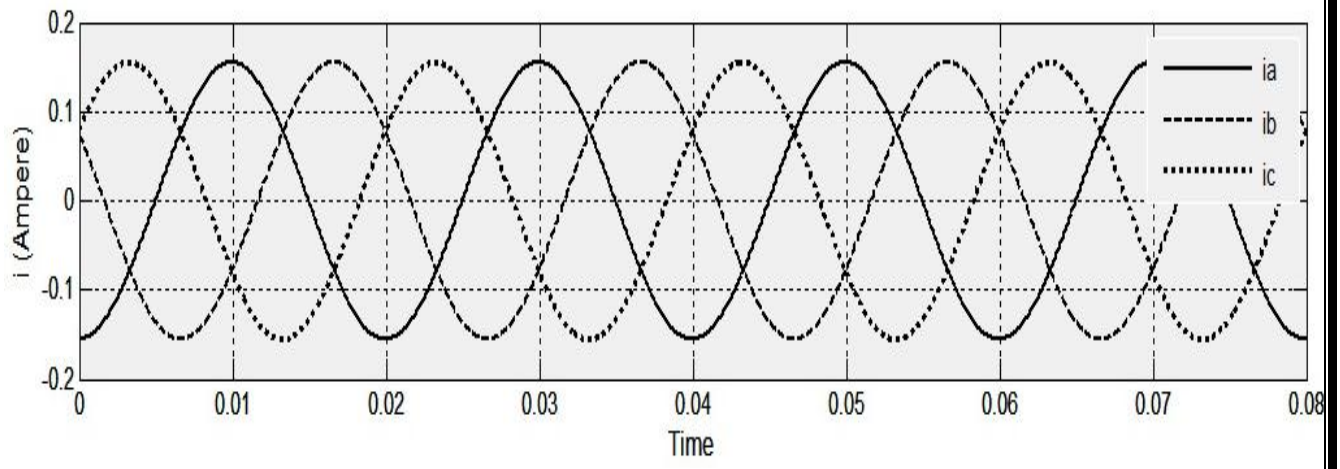
Aim: To simulate balanced 3 wire system.

Circuit Diagram:



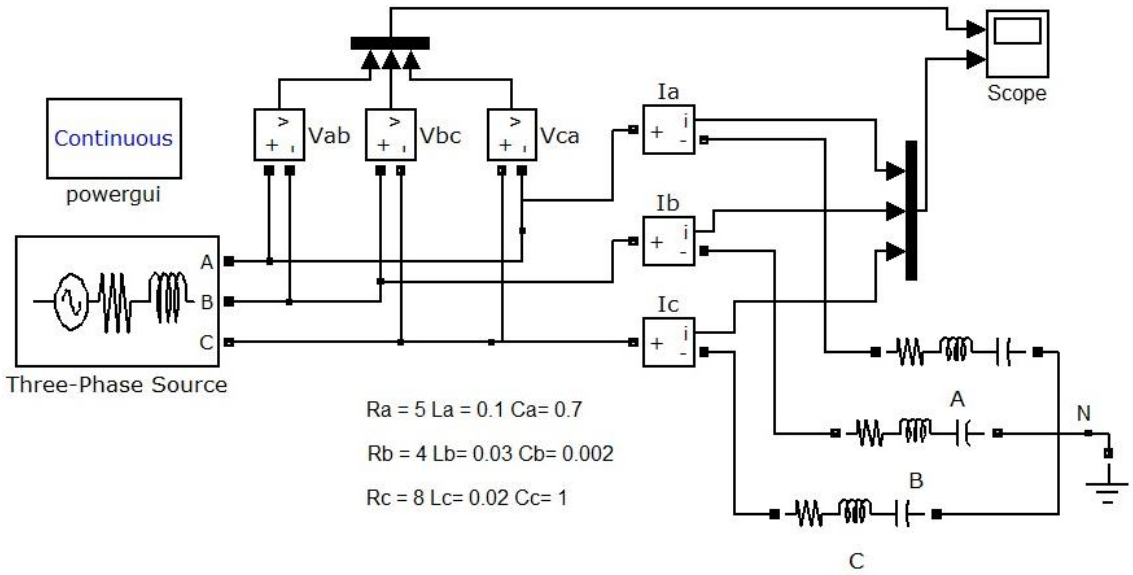
Output:





Aim: To simulate unbalanced 3 wire system.

Circuit Diagram:



Output: