#include<math.h>

#include<string.h>

#include<stdio.h>

#include<conio.h>

#include<graphics.h>

#include<stdlib.h>

#define pi 3.1415

resistance();

int main()

{

int gd=DETECT,gm;

clrscr();

initgraph(&gd,&gm,"C:\\TC\\BGI");

resistance();

getch();

cleardevice();

return 0;

}

resistance()

{

int i,n,Rs=0,res[10],V,F;

float Cs=0,Ls=0,w,freq,Xl,Xc,C[10],L[10],Z;

char r[10], f[10],c[10],v[10],l[10],xl[10],xc[10],z[10];

printf("Enter the voltage and frequency\n");

scanf("%d%d",&V,&F);

printf("Enter the no. of resistances\n"); /\*RESISTANCE\*/

scanf("%d",&n);

printf("Enter the value of each resistance\n");

for(i=0;i<n;i++)

{

printf("\R%d=",i+1);

scanf("%d",&res[i]);

}

for(i=0;i<n;i++)

{

Rs+=res[i];

}

clrscr();

cleardevice();

printf("\nEnter the no. of capacitances\n"); /\*CAPACITANCE\*/

scanf("%d",&n);

printf("Enter the value of each capacitance\n");

for(i=0;i<n;i++)

{

printf("\C%d=",i+1);

scanf("%f",&C[i]);

}

for(i=0;i<n;i++)

{

Cs+=1/C[i];

}

Cs=1/Cs;

clrscr();

cleardevice();

printf("Enter the no. of inductances\n"); /\*INDUCTANCE\*/

scanf("%d",&n);

printf("Enter the value of each inductance\n");

for(i=0;i<n;i++)

{

printf("\L%d=",i+1);

scanf("%f",&L[i]);

}

for(i=0;i<n;i++)

{

Ls=L[i]+Ls;

}

clrscr();

cleardevice();

w=2\*pi\*F;

Xl=w\*Ls;

Xc=1/(w\*Cs);

Z=sqrt(pow(Rs,2)+pow((Xl-Xc),2));

line(100,70,100,200); /\*vertical wire #1\*/

line(100,200,280,200); /\*horizontal wire #1\*/

circle(290,200,10); /\*battery\*/

line(300,200,480,200); /\*horizontal wire #2\*/

line(480,70,480,200); /\*vertical wire #2\*/

line(100,70,170,70); /\*wire\*/

line(170,70,180,60); /\*resistance\*/

line(180,60,190,70); /\*resistance\*/

line(190,70,200,60); /\*resistance\*/

line(200,60,210,70); /\*resistance\*/

line(210,70,220,60); /\*resistance\*/

line(220,60,230,70); /\*resistance\*/

line(230,70,280,70); /\*wire\*/

line(280,50,280,90); /\*capacitor\*/

line(300,50,300,90); /\*capacitor\*/

line(300,70,335,70); /\*inductor loop1\*/

arc(350,70,0,180,15); /\*inductor\*/

arc(360,70,180,360,5); /\*inductor loop2\*/

arc(370,70,0,180,15); /\*inductor\*/

arc(380,70,180,360,5); /\*inductor loop3\*/

arc(390,70,0,180,15); /\*inductor\*/

arc(400,70,180,360,5);

arc(410,70,0,180,15);

line(425,70,480,70); /\*wire\*/

outtextxy(287,200,"~");

sprintf(c,"C=%0.2f F",Cs);

outtextxy(280,35,c);

sprintf(v,"%dV",V);

outtextxy(270,220,v);

sprintf(f,",%dHz",F);

outtextxy(300,220,f);

sprintf(r,"R=%d ohm",Rs);

outtextxy(190,35,r);

sprintf(l,"L=%0.2f H",Ls);

outtextxy(380,35,l);

sprintf(xl,"Xl=%0.3f ohm",Xl);

outtextxy(200,270,xl);

sprintf(xc,"Xc=%0.3f ohm",Xc);

outtextxy(200,280,xc);

sprintf(z,"Z=%0.3f ohm",Z);

outtextxy(200,290,z);

outtextxy(200,250,"Equivalent Circuit Diagram");

return 0;

}