d)sinc function

i)continuous

clc

clear all

%sinc function(continuous)

a=[-5:0.01:5];

for i=1:length(a)

y(i)=(sin(pi\*a(i)))/(pi\*a(i));

end

plot(a,y)

%labeling

title('sinc function(continuous)')

xlabel('x')

ylabel('sinc(x)')

grid on

ii)discrete

clc

clear all

%sinc function(discrete)

a=[-5:0.01:5];

for i=1:length(a)

y(i)=(sin(pi\*a(i)))/(pi\*a(i));

end

stem(a,y)

%labeling

title('sinc function(discrete)')

xlabel('x')

ylabel('sinc(x)')

grid on

e)rectangular function

i)continuous

clear all

clc

%Rectangular function(continuous)

x=[-10:0.05:10];

for i=1:length(x)

if(x(i)<5 & x(i)>-5)

rect1(i)=10;

else

rect1(i)=0;

end

end

plot(x,rect1)

%labeling

title('rectangular function(continuous)')

xlabel('x')

ylabel('rect(x)')

grid on

ii)discrete

clear all

clc

%Rectangular function(discrete)

x=[-10:1:10];

for i=1:length(x)

if(x(i)<5 & x(i)>-5)

rect1(i)=10;

else

rect1(i)=0;

end

end

stem(x,rect1)

%labeling

title('rectangular function(discrete)')

xlabel('x')

ylabel('rect(x)')

grid on

**Experiment -4**

**Aim:** Obtain the even part and odd parts for a given signal

1. **Exponential Signal**

i)Even Signal

clear all

clc

%Even signal continuous

a=[-2:.001: 2]

for i=1:length(a)

%if a(i)<0

e1(i)=5\*exp(-2.\*a(i));

e2(i)=5\*exp(2.\*a(i));

even(i)=(e2(i)+e1(i))/2;

end

plot(a,even);

%labeling

title('Even Signal continuous')

xlabel('X')

ylabel('Y')

grid on

ii)Odd signal

clear all

clc

%odd signal continuous

a=[-2:.001: 2]

for i=1:length(a)

%if a(i)<0

e1(i)=5\*exp(-2.\*a(i));

e2(i)=5\*exp(2.\*a(i));

odd(i)=(e2(i)-e1(i))/2;

end

plot(a,odd);

%labeling

title('odd Signal continuous')

xlabel('X')

ylabel('Y')

grid on

b)**Sine wave**

i)Even Signal

clear all

clc

%Even signal continuous sine wave

a=[-5:.01: 5]

for i=1:length(a)

%if a(i)<0

e1(i)=5\*sin(1000\*3.14\*a(i));

e2(i)=5\*sin(-1000\*3.14\*a(i));

even(i)=(e1(i)+e2(i))/2;

end

plot(a,even);

%labeling

title('Even Signal continuous')

xlabel('X')

ylabel('Y')

grid on

ii)Odd signal

clear all

clc

%odd signal continuous sine wave

a=[-5:.01: 5]

for i=1:length(a)

%if a(i)<0

e1(i)=5\*sin(1000\*3.14\*a(i));

e2(i)=5\*sin(-1000\*3.14\*a(i));

odd(i)=(e1(i)-e2(i))/2;

end

plot(a,odd);

%labeling

title('odd Signal continuous')

xlabel('X')

ylabel('Y')

grid on

c)**Imaginary exponential signal**

i)Even signal

clear all

clc

%even signal continuous imaginary

a=[-5:.01: 5]

for i=1:length(a)

%if a(i)<0

e1(i)=3\*exp(-j\*a(i));

e2(i)=3\*exp(j\*a(i));

even(i)=(e1(i)+e2(i))/2;

end

plot(a,even);

%labeling

title('Even signal continuous')

xlabel('X')

ylabel('Y')

grid on

ii)Odd signal

clear all

clc

%odd signal continuous sine wave

a=[-5:.01: 5]

for i=1:length(a)

%if a(i)<0

e1(i)=3\*exp(-j\*a(i));

e2(i)=3\*exp(j\*a(i));

odd(i)=-1\*(e1(i)-e2(i))/2\*j;

end

plot(a,odd);

%labeling

title('odd signal continuous')

xlabel('X')

ylabel('Y')

grid on