**FA23-BCE-113**

**MUHAMMAD AHMAD**

**Q1**

**A**

clc;

clear;

close all;

R=3

% a : t^R

t=-2:.1:2 %interval

x\_t= t.^3 %x(t)=t^R

x\_neg\_t = flip(x\_t) %-x(t)

neg\_x\_neg\_t=flip(-x\_t) %-x(-t)

% if (x(t)=x(-t))

% even

% else if (x(t)=-x(-t))

% odd

% else

% not even and odd

% SO OUR PART 1 IS ODD

% orignal signal x(t)

subplot(311)

plot(t,x\_t);

title('x(t)');

%invert on time axis x(-t)

subplot(312)

plot(t,flip(x\_t))

title('x(-t)');

%invert on time axis and amp.axis -x(-t)

subplot(313)

plot(t,flip(-x\_t))

title(-'x(-t)');

**Q1**

**B**

clc;

clear;

close all;

R=3

% a : t^R

t=-2:.1:2 %interval

x\_t= t.^6 %x(t)=t^2R

x\_neg\_t = flip(x\_t) %x(-t)

neg\_x\_neg\_t=flip(-x\_t) %-x(-t)

% if (x(t)=x(-t))

% even

% else if (x(t)=-x(-t))

% odd

% else

% not even and odd

% SO OUR PART 2 IS EVEN

% orignal signal x(t)

subplot(311)

plot(t,x\_t);

title('x(t)');

%invert on time axis x(-t)

subplot(312)

plot(t,flip(x\_t))

title('x(-t)');

%invert on time axis and amp.axis -x(-t)

subplot(313)

plot(t,flip(-x\_t))

title(-'x(-t)');

**Q2**

**A**

clc

clear

close all

R=3

n =-1:3 % interval

x=[0 , R , 2\*R , 3\*R , 4\*R] %x[n]

y\_n = x.^2 & x^2[n] %x^2[n]

% static system because define on its orignal interval after appling

% operation

subplot(211)

stem(n,x); % actual

title('x[n]')

subplot(212)

stem(n,y\_n) % shifted

title('x^2[n]')

**Q2**

**B**

clc

clear

close all

R=3

n =-1:3 % interval

x=[0 , R , 2\*R , 3\*R , 4\*R] %x[n]

y\_n = upsample(x , 2) %x^2[n]

% static system because define on its orignal interval after appling

% operation

subplot(211)

stem(n,x); % actual

title('x[n]')

subplot(212)

stem(-6:3,y\_n) % shifted

title('x^[n/2]')