**Problem 1:**

**Code:**

clear;clc;

a=1/2;

R=3;

x=[1:10];

Y = eco\_filter(a,R,x);

subplot(2,1,1);

h=abs(fftshift(fft(Y)))

plot(h)

% figure (2);

subplot(2,1,2);

plot(angle(fftshift(fft(Y))));

**Function:**

% Function eco\_filter

function [ Y ] = eco\_filter( a,R,x )

% eco\_filter Summary of this function goes here

% Detailed explanation goes here

% Y = zeros(1, 1000);

Y=zeros(1,(length(x)+R));

Y1=zeros(1,(length(x)+R));

Y2=zeros(1,(length(x)+R));

for n=1:length(x)

if n<4

% Y(n)=x(n);

Y1(n)=x(n);

else

% Y(n)=x(n)+a\*x(n-R)

Y2(n)=x(n);

end

end

Y=Y1+a\*Y2;

End

