

**Independent University Bangladesh**

Department of Electrical and Electronics Engineering

**Lab Report** **06**

Name: Injamamul Haque Sourov

Id: 1820170

Course code: EEE 321L

Couse name: Digital Signal Processing Lab

Lab no: 06

Lab title: Study on z-transform

Date: 30/12/2020

1. Frequency response and pole-zero plot for y(n) = 0.9y(n–1) + x(n)

Code:

% coefficients from differnece equation

b = [1 0];

a = [1 -0.9];

% points of frequency vector

w = 100;

% compute frequency response

[H, w] = freqz(b,a,w);

% zerp-pole plot

zplane(a,b)

% magnitude and phse response

mag = abs(H);

phase = angle(H);

% plotting

figure(2); plot(mag)

title('Mangnitude Response','fontsize',15)

xlabel('Frequency in pi units','fontsize',12)

ylabel('|H(z)|','fontsize',12)

figure(3); plot(phase)

title('Phase Response','fontsize',15)

xlabel('Frequency in pi units','fontsize',12)

ylabel('Phase in radians','fontsize',12)

Outputs:





  
*Figure: Pole-zero plot*

1. Assignment:
   1. Function definition:

% function to compute frequency response from difference equation coefficients

function [mag, ph]= fResponse(b,a)

w = 100; % frequency vector points

[H, w] = freqz(b,a,w);

% magnitude and phse response

mag = abs(H);

ph = angle(H);

% plotting

plot(mag)

title('Mangnitude Response','fontsize',15)

xlabel('Frequency in pi units','fontsize',12)

ylabel('|H(z)|','fontsize',12)

figure(2); plot(ph)

title('Phase Response','fontsize',15)

xlabel('Frequency in pi units','fontsize',12)

ylabel('Phase in radians','fontsize',12)

end

* 1. Call and output:

Code:

% assignment: y(n) = 0.9y(n–1) + 2x(n)

b = [2 0];

a = [1 -0.9];

[mag, phase] = fResponse(b,a);

Outputs:



