**DTSP**

**EXPERIMENT NO: 2**

**PLOE ZERO PLOT USING Z-TRANSFORM**

AIM: To obtain pole zero plot using Z-transform.

SOFTWARE USED: MATLAB VER 8.6(R2015b).

PROGRAM:

% To obtain the magnitude plot, phase plot,& pole-zero plot of a given

% Transfer function using MATLAB

%PROGRAM:

%Magnitude plot:

b=[1 -0.5]; %Numerator of the Transfer Function.

a=[1 0]; %Denominator of the Transfer Function.

w=-2\*pi:pi/10:2\*pi; %w is the angular frequency.

[h,o]=freqz(b,a,w);

r=abs(h);

y=angle(h);

subplot(3,1,1);

plot(w,r);

grid on;

ax=gca;

ax.XTick=[-2\*pi -3\*pi/2 -pi -pi/2 0 pi/2 pi 3\*pi/2 2\*pi];

XTickLabel=({'-2\pi' , '-\pi' , '0' , '\pi' , '2\pi'})

xlabel('Frequency in Radians');

ylabel('Magnitude: abs(H)');

title('Magnitude plot');

%Phase plot:

subplot(3,1,2);

plot(o,y);

grid on;

ax.XTick=[-2\*pi -3\*pi/2 -pi -pi/2 0 pi/2 pi 3\*pi/2 2\*pi];

XTickLabel=({'-2\pi' , '-\pi' , '0' , '\pi' , '2\pi'})

xlabel('Frequency in Radians');

ylabel('Phase: angle(H)');

title('Phase Plot');

%Pole zero plot:

subplot(3,1,3);

zplane(0.5,0);

title('Pole zero plot');

gtext('Name);

OUTPUT:

