```
1  ////////////To generate basic discrete signal gerations
2  clc;
3  clear;
4  //ieee(1); //to add floating point exception mode
5  xdel(winsid()); //Deletes all graphics windows
6  n = 0:50; //Discrete time, n
7  f = 0.03; //Frequency
8  a = 5; //Amplitude
9  pi = %pi; //%pi is defined for pi
10 //Sine Wave
11 x1 = a*sin(2*pi*f*n);
12 subplot(331);
13 plot2d3(n,x1,2) //to plot vertical lines (MATLAB STEM Eq.)
14 title('Sine Wave','color','red','fontsize',3);
15 xlabel("Discrete Time, n","fontsize",2,"color","black");
16 ylabel("Amplitude, x[n]","fontsize",2,"color","black");
17 //Cosine wave
18 x2 = a*cos(2*pi*f*n);
19 subplot(332);
20 plot2d3(n,x2,2);
21 title('Cosine Wave','color','red','fontsize',3);
22 xlabel("Discrete Time, n","fontsize",2.5,"color","black");
23 ylabel("Amplitude, x[n]","fontsize",2.5,"color","black");
24 //Square Wave
25 d=a*squarewave(2*pi*f*n);
26 subplot(333);
27 plot2d3(n,d,2);
28 title('Square Wave','color','red','fontsize',3);
29 xlabel("Discrete Time, n","fontsize",2.5,"color","black");
30 ylabel("Amplitude, x[n]","fontsize",2.5,"color","black");
31 //Impulse wave
32 n1=-10:10;
33 x3=[zeros(1,10) 1 zeros(1,10)];
34 subplot(334);
35 plot2d3(n1,x3,2);
36 title('Impulse Wave','color','red','fontsize',3);
37 xlabel("Discrete Time, n","fontsize",2.5,"color","black");
38 ylabel("Amplitude, x[n]","fontsize",2.5,"color","black");
39 //Unit Step Wave
40 n1=0:50;
41 x7=ones(n1);
42 subplot(335);
43 plot2d3(n1,x7,2);
44 title('Unit Step Wave','color','red','fontsize','3');
45 xlabel("Discrete Time,n","fontsize",2,"color","black");
46 ylabel("Amplitude,x[n]","fontsize",2,"color","black");
47 //Ramp wave
48 n1 = 0:10;
49 x4 = a*n1;
50 subplot(336);
51 plot2d3(n1,x4,2);
52 title('Ramp Wave','color','red','fontsize',3);
53 xlabel("Discrete Time, n","fontsize",2.5,"color","black");
54 ylabel("Amplitude, x[n]","fontsize",2.5,"color","black");
55 //Exponential wave
56 n1=0:5
57 x5 =exp(n1);
58 subplot(337);
59 plot2d3(n1,x5,2);
60 title('Exponential Wave','color','red','fontsize',3);
61 xlabel("Discrete Time,n","fontsize",2,"color","black");
```

```
ylabel("Amplitude,x[n]","fontsize",2,"color","black");
//Sinc Wave
n=-50:50;
y =sinc(2*%pi*n*f);
subplot(338);
plot2d3(n,y,2);
title('Sinc Wave','color','red','fontsize',3);
xlabel("Discrete Time,n","fontsize",2,"color","black");
ylabel("Amplitude,x[n]","fontsize",2,"color","black");
//Random wave
x6 = a*rand(1,50); //rand(row,column) gives a random matrix
subplot(339);
plot2d3(1:length(x6),x6,2);
title('Random Wave','color','red','fontsize',3);
xlabel("Discrete Time,n","fontsize",2,"color","black");
ylabel("Amplitude,x[n]","fontsize",2,"color","black");
```