PR1

```
clc clear all close all
N=input('Enter the
period:); subplot(3,2,1)
n=0:N D=[1;zeros(N,1)]
stem(n,D) xlabel('N')
ylabel('D') title('unit
impulse signal')

S=ones (1, N+1)
subplot(3,2,2) stem(n,S)
xlabel('N') ylabel('S')
title( 'unit step Sequence')

R=n subplot (3,2,3)
stem(n,R) xlabel('N')
ylabel('R') title('Unit Ramp
Sequence')

E=0.9.^n
subplot(3,2,4)
stem(n,E) xlabel('N')
ylabel('E') title('Unit
Decreasing
Exponential')

E1=1.1.^n subplot(3,2,5)
stem(n,E1) xlabel('N')
ylabel('E1') title('unit
Increasing function')

X=sin(0.1*pi*n)
subplot(3,2,6) stem(n,X)
xlabel('N') ylabel('x')
title('Unit sine sequence')
```

PR2

```
n1=input('Enter the mountb
to be delayed');
n2=input('Enter the
amountbto be advanced');
n=-2:2;
x=[-2 3 0 1 5];
subplot(3,1,1);
stem(n,x);
title('Signal x(n)');
m=n+n1; y=x;
subplot(3,1,2);
stem(m,y);
title('Delayed signal
x(n-n1)'); t=n-n2;
z=x; subplot(3,1,3);
stem(t,z);
title('Advanced signal
x(n+n2)');
```

PR3

```
clc clear all close all
x1 = input('Enter x1: ')
subplot(3,1,1)
stem(x1)
title('first sequence')
xlabel('Sample')
ylabel('amplitude')

x2 = input('Enter x2: ')
subplot(3,1,2)
stem(x2) title('second
sequence')
xlabel('Sample')
ylabel('amplitude')

y = conv(x1,x2)
subplot(3,1,3)
stem(y,'red') grid on
title('convolution')
xlabel('Sample')
ylabel('amplitude')
```

PR 4a

```
clc clear all close all x1 =
input('Enter x1: ')
subplot(3,1,1)
stem(x1)
title('first sequence')
xlabel('Sample')
ylabel('amplitude')

x2 = input('Enter x2: ')
subplot(3,1,2) stem(x2)
title('second sequence')
xlabel('Sample')
ylabel('amplitude')

y = xcorr(x1,x2)
subplot(3,1,3)
stem(y,'red') grid on
title('cross
correlation')
xlabel('Sample')
ylabel('amplitude')
```

PR4b

```
clc clear all close all x1 =
input('Enter x1: ')
subplot(2,1,1)
stem(x1)
title('first sequence')
xlabel('Sample')
ylabel('amplitude')

y = autocorr(x1)
subplot(2,1,2)
stem(y,'red') grid on
title('auto correlation')
xlabel('Sample')
ylabel('amplitude')
```

PR5

```
clc close all clear all x1 =
input('Enter the first
sequence: ') x2 =
input('Enter the Second
sequence: ') N1 =
length(x1);
N2 = length(x2);
N =
max(N1,N2)
disp(N) C =
cconv(x1,x2,N)
stem(C,'red') grid on
title('Circular Convolution
of Given signals')
xlabel('Samples')
ylabel('Amplitude')
```

PR6

```
x1_n=input('enter the first
sequence: ');
x2_n=input('enter the
second sequence: ');
N=length(x1_n);
M=length(x2_n);
S=N+M-1;
X1_K=fft(x1_n,S);
X2_K=fft(x2_n,S);
X3_K=X1_K.*X2_K;
x3_n=ifft(X3_K);
stem(x3_n,'r')
title('Linear conv using
Circular
Convolution')
Xlable('sample')
ylabel('amplitude')
```

PR7

```
clc clear all close all X
= input("enter the
sequence: ") N =
length(X); t = 0:N-1;
Y = fft(X) stem(X,
real(Y), 'bo'); hold on;
stem(X, imag(Y), 'r*');
zoom on; grid on;
xlabel('X');
legend('real',
'imaginary'); hold
off m = abs(Y) p =
unwrap(angle(Y))
```

PR 8

```
x=[1,2,3,4,5,6,7];
X=fft(x);
magnitude_spectru
m=abs(X);
phase_spectrum=a
ngle(X);

%plotting
magnitude
spectrum

subplot(2,1,1)
stem(magnitude_sp
ectrum);
xlabel('Frequency')
;
ylabel('Magnitude')
;
title('Magnitude
spectrum');

%plotting phase
spectrum

subplot(2,1,2);
stem(phase_spectru
m);
xlabel('Frequency')
;
ylabel('Phase');
title('Phase
spectrum');
```