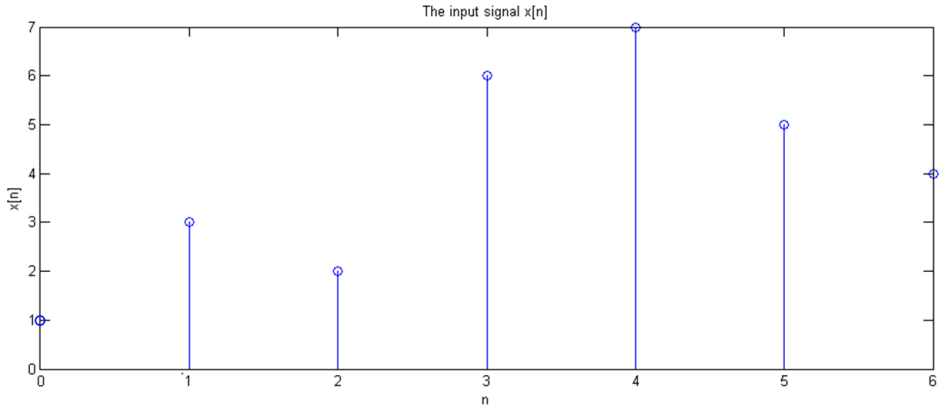
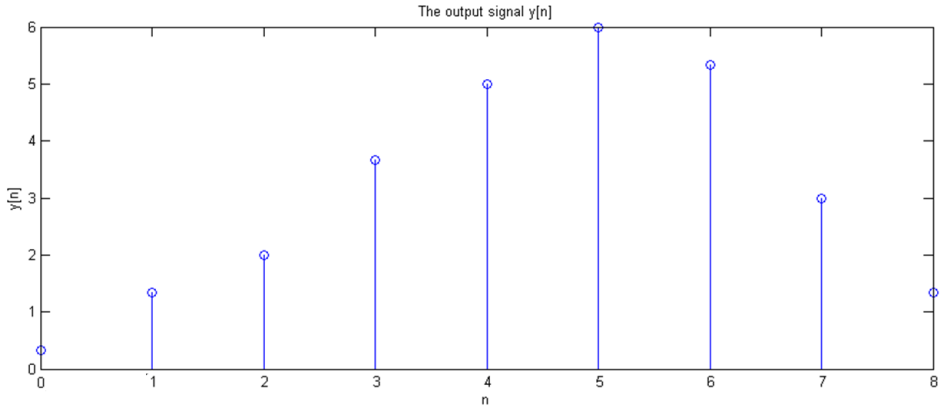
ICE503 DSP-MATLAB#2

```
clear
clc

x = [1 3 2 6 7 5 4];   % The input signal x[n]
L = length(x);         % Length of x[n]
M = 3;                 % 3-point moving average


%% (a) Use stem function to plot x[n]
figure(1)
stem(x);
xlabel('n');
ylabel('x[n]');
title('The input signal x[n]');
```




```
%% (b) Use for loop to calculate y[n]
x_pad = [zeros(1,M-1) x zeros(1,M-1)];  % Pad the x[n] with zero
for n = 1:L+M-1
    y1(n) = mean(x_pad(n:n+2));
end


%% (c) Use convolution function to calculate y[n]
move_avg = 1/M*ones(1,M);
y2 = conv(x,move_avg);


%% (d)  Use stem function to plot y[n]
figure(2)
stem(y2);
xlabel('n');
ylabel('y[n]');
title('The output signal y[n]');
```


The output signal y[n]
y[n]
n
0
1
2
3
4
5
6
7
8