```
clc;
clear all;

fp=input('enter the passband frequency');
fs=input('enter the stopband frequency');
rp=input('enter the passband ripple');
rs=input('enter the stopband ripple');
f=input('enter the sampling frequency');
B=input('enter the beta value');
wp=2*(fp/f)
```

```
wp = 0.4000
```

```
ws=2*(fs/f)
```

```
ws = 0.3000
```

```
%%wn=[wpws];%%only for bandpass and bandstop
num=-20*log10(sqrt(rp*rs))-13
```

```
num = -16.0103
```

```
den=14.6*(fs-fp)/f
```

```
den = -0.7300
```

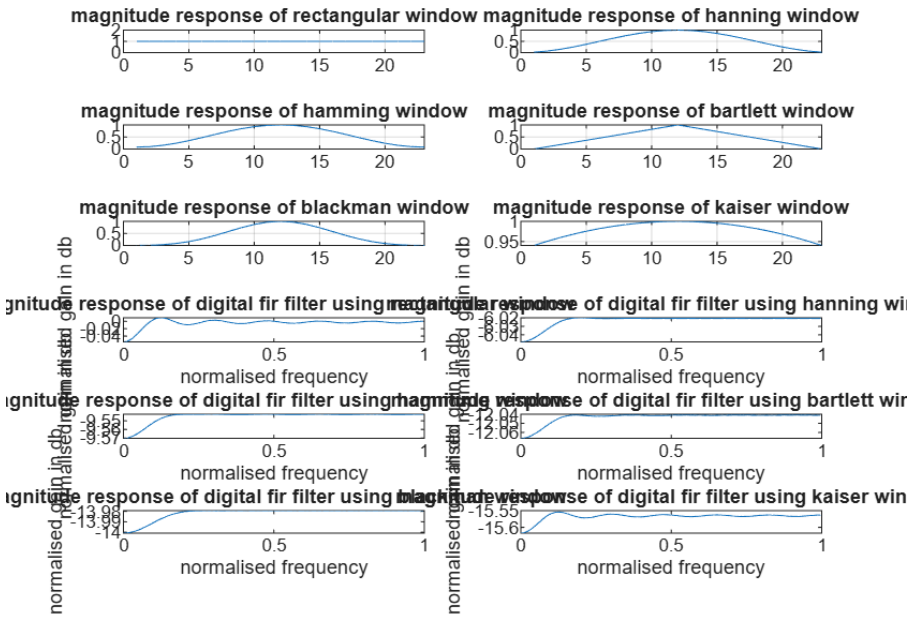
```
n=ceil(num/den)
```

```
n = 22
```

```
n1=n+1;
if(rem(n,2)~=0)
    n1=n;
    n=n-1;
end

y1=boxcar(n1);
y2=hanning(n1);
y3=hamming(n1);
y4=bartlett(n1);
y5=blackman(n1);
y6=kaiser(n1);

subplot(6,2,1);
plot(y1);
title('magnitude response of rectangular window');
grid on;

subplot(6,2,2);
plot(y2);
title('magnitude response of hanning window');
grid on;
```

```
subplot(6,2,3);
plot(y3);
title('magnitude response of hamming window');
grid on;

subplot(6,2,4);
plot(y4);
title('magnitude response of bartlett window');
grid on;

subplot(6,2,5);
plot(y5);
title('magnitude response of blackman window');
grid on;

subplot(6,2,6);
plot(y6);
title('magnitude response of kaiser window');
grid on;

wp_normalized = wp / (fs / 2);
b1=fir1(n,wp_normalized,'high',y1);
b2=fir1(n,wp_normalized,'high',y2);
b3=fir1(n,wp_normalized,'high',y3);
b4=fir1(n,wp_normalized,'high',y4);
b5=fir1(n,wp_normalized,'high',y5);
b6=fir1(n,wp_normalized,'high',y6);

[h1,o1]=freqz(b1,1,256);
m1=20*log10(abs(h1));
subplot(6,2,7);
plot(o1/pi,m1);
title('magnitude response of digital fir filter using rectangular window');
xlabel('normalised frequency');
ylabel('normalised gain in db');

[h2,o2]=freqz(b2,2,256);
m2=20*log10(abs(h2));
subplot(6,2,8);
plot(o2/pi,m2);
title('magnitude response of digital fir filter using hanning window');
xlabel('normalised frequency');
ylabel('normalised gain in db');

[h3,o3]=freqz(b3,3,256);
m3=20*log10(abs(h3));
subplot(6,2,9);
plot(o3/pi,m3);
title('magnitude response of digital fir filter using hammimg window');
xlabel('normalised frequency');
ylabel('normalised gain in db');
```

```
[h4,o4]=freqz(b4,4,256);
m4=20*log10(abs(h4));
subplot(6,2,10);
plot(o4/pi,m4);
title('magnitude response of digital fir filter using bartlett window');
xlabel('normalised frequency');
ylabel('normalised gain in db');

[h5,o5]=freqz(b5,5,256);
m5=20*log10(abs(h5));
subplot(6,2,11);
plot(o5/pi,m5);
title('magnitude response of digital fir filter using blackman window');
xlabel('normalised frequency');
ylabel('normalised gain in db');

[h6,o6]=freqz(b6,6,256);
m6=20*log10(abs(h6));
subplot(6,2,12);
plot(o6/pi,m6);
title('magnitude response of digital fir filter using kaiser window');
xlabel('normalised frequency');
ylabel('normalised gain in db');
```




```
% INPUT values
% passband freq = 4000
% stopband freq = 3000
% passband ripple = 0.04
% stopband ripple = 50
% sampling freq = 20000
% beta value = 6
```