8.)bilinear filter
```
clc;
clearall;
n=input('enter no. of samples');
a=input('enter value of denor');
b=input('enter value of numr');
fs=2*n;
[bz,az]=bilinear(b,a,fs)
```

9.)impinvar filter
```
clc;
clearall;
n=input('enter no. of samples');
a=input('enter value of denor');
b=input('enter value of numr');
fs=2*n;
[bz,az]=impinvar(b,a,fs)
```

10.)butter worth
```
clc;
clearall;
closeall;
wp=40/500;
ws=150/500;
[n,wn]=buttord(wp,ws,3,60)
[b,a]=butter(n,wn)
freqz(b,a,512,1000)
title('n=5 butter worth LPF')
```

11.) compare hanning hamming kaiser window
```
n=50;
wc=0.5*pi;
w=0:0.001:pi;
h=fir1(n,wc/pi,hamming(n+1));
i=freqz(h,1,w);
plot(w/pi,20*log(abs(i)),'red');
gridon;
holdon;
h=fir1(n,wc/pi,hanning(n+1));
i=freqz(h,1,w);
plot(w/pi,20*log(abs(i)),'green');
holdon;
h=fir1(n,wc/pi,blackman(n+1));
i=freqz(h,1,w);
plot(w/pi,20*log(abs(i)),'blue');
holdoff;
```

12.) hamming, hanning , kaiser
```
clearall;
clc;
n=36;
```

```
wc=0.5*pi;%%%cutoff freqz
w=0:0.001:2*pi;
%%%hamming window%%%
h=fir1(n,wc/pi,hamming(n+1));
i=freqz(h,1,w);
subplot(3,2,1);
plot(w/pi,20*log10(abs(i)),'red');
title('Mag. res "Hamming"');
subplot(3,2,2);
plot(w/pi,angle(i),'blue');
title('Freq.res."Hamming"');
%%%Hanning window%%%
h=fir1(n,wc/pi,hann(n+1));
i=freqz(h,1,w);
subplot(3,2,3);
plot(w/pi,20*log10(abs(i)),'red');
title('Mag. res "Hanning"');
subplot(3,2,4);
plot(w/pi,angle(i));
title('Freq.res."Hanning"');
%%%kaiser window%%%
n=30;
w=0:0.01:2*pi;
%h=fir1(n,wc/pi,kaiser((n+1),0.5));
h=kaiser(n+1,0.5);
i=freqz(h,1,w);
subplot(3,2,1);
plot(w/pi,20*log10(abs(i)),'red');
title('Mag. res "Hamming"');
subplot(3,2,2);
plot(w/pi,angle(i),'blue');
title('Freq.res."Hamming"');
```