Ex.1.2

* 4th order moving average filter

1)The difference equation

2)Numerical behavior

Given , find

1. Convolution Model

Now

Hence

If Input is

Then

* ,

1. State Space Form

Then is equivalent to a state space form as

1. d.1)Linear, from (b.1)

If are the output corresponding to the input , as

Hence if the input , then

d.2) time-invariant since

Let