FIR FILTER

PROGRAM:

A.

figure(1)

x1=[4 3 2 1 2 3 4]

y1=length(x1)

a1=0;

b1=0;

for i=1:(y1)

if (x1(i) == x1(y1-i+1))

b1=b1+1;

else

a1=a1+1;

end

end

if a1 >= 1

disp('Asymmetric')

else

disp('symmetric')

end

if (rem(y1,2) == 0)

disp('even')

else

disp('odd')

end

freqz(x1)

B.

figure(2)

x2=[4 3 2 1 1 2 3 4]

y2=length(x1)

a2=0;

b2=0;

for i=1:(y2)

if (x2(i) == x2(y2-i+1))

b2=b2+1;

else

a2=a2+1;

end

end

if a2 >= 1

disp('Asymmetric')

else

disp('symmetric')

end

if (rem(y2,2) == 0)

disp('even')

else

disp('odd')

end

freqz(x2)

C.

figure(3)

x3=[-4 -3 -2 -1 1 2 3 4]

y3=length(x3)

a3=0;

b3=0;

for i=1:(y3)

if (x3(i) == x3(y3-i+1))

b3=b3+1;

else

a3=a3+1;

end

end

if a3 >= 1

disp('Asymmetric')

else

disp('symmetric')

end

if (rem(y3,2) == 0)

disp('even')

else

disp('odd')

end

freqz(x3)

D.

figure(4)

x4=[-4 -3 -2 0 2 3 4]

y4=length(x4)

a4=0;

b4=0;

for i=1:(y4)

if (x4(i) == x4(y4-i+1))

b4=b4+1;

else

a4=a4+1;

end

end

if a4 >= 1

disp('Asymmetric')

else

disp('symmetric')

end

if (rem(y4,2) == 0)

disp('even')

else

disp('odd')

end

freqz(x4)

OUTPUT:

A.

x1 =

4 3 2 1 2 3 4

y1 =

7

symmetric

odd

x2 =

4 3 2 1 1 2 3 4

y2 =

7

Asymmetric

odd

C.

x3 =

-4 -3 -2 -1 1 2 3 4

y3 =

8

Asymmetric

even

D.

x4 =

-4 -3 -2 0 2 3 4

y4 =

7

Asymmetric

odd