EXPERIMENT NO. : **9**

Aim: Implementation Of linear Block Code

clc;

clear all;

% Input Generator Matrix

g=input('Enter The Generator Matrix: ')

disp ('G = ')

disp ('The Order of Linear block Code for given Generator Matrix is:')

[n,k] = size(transpose(g))

for i = 1:2^k

for j = k:-1:1

if rem(i-1,2^(-j+k+1))>=2^(-j+k)

u(i,j)=1;

else

u(i,j)=0;

end

end

end

u;

disp('The Possible Codewords are :')

c = rem(u\*g,2)

disp('The Minimum Hamming Distance dmin for given Block Code is= ')

d\_min = min(sum((c(2:2^k,:))'))

output

Enter The Generator Matrix: [1 0 0 0 1 0 1;0 1 0 0 1 1 1;0 0 1 0 1 1 0;0 0 0 1 0 1 1]

g =

1 0 0 0 1 0 1

0 1 0 0 1 1 1

0 0 1 0 1 1 0

0 0 0 1 0 1 1

G =

The Order of Linear block Code for given Generator Matrix is:

n =

7

k =

4

The Possible Codewords are :

c =

0 0 0 0 0 0 0

0 0 0 1 0 1 1

0 0 1 0 1 1 0

0 0 1 1 1 0 1

0 1 0 0 1 1 1

0 1 0 1 1 0 0

0 1 1 0 0 0 1

0 1 1 1 0 1 0

1 0 0 0 1 0 1

1 0 0 1 1 1 0

1 0 1 0 0 1 1

1 0 1 1 0 0 0

1 1 0 0 0 1 0

1 1 0 1 0 0 1

1 1 1 0 1 0 0

1 1 1 1 1 1 1

The Minimum Hamming Distance dmin for given Block Code is=

d\_min =

3