

```

001 clc;
002 clear all;
003 m=[1 0 0 1];
004 p=[1 1 1;0 1 1;1 0 1;1 1 0];
005 k=length(m);
006 I=eye(k,k);
007 disp(I);
008 G=[p I];
009 disp("generation matrix is:")
010 disp(G);
011 C=modulo(m*G,2);
012 n=length(C);
013 disp("code word is:")
014 disp(C);
015 //e=[0 0 0 0 0 1];
016 r=[1 0 1 1 0 0 1];
017 l=eye(n-k,n-k);
018 H=[p' l];
019 disp(H);
020 s=modulo(r*H',2);
021 disp(s);
022 HT=H';
023 if(s==0)
024 disp('correct');
025 else
026 disp('recieved code vector with error');
027 for i=1:n;
028 if(s==HT(i,:))
029 e=[zeros(1,i-1) 1 zeros(1,n-i)];
030 end
031 end
032 end
033 disp('correct code word is');
034 CC=modulo(r + e,2);
035 disp(CC);

```

1. 0. 0. 0.

0. 1. 0. 0.

0. 0. 1. 0.

0. 0. 0. 1.

"generation matrix is:"

1. 1. 1. 1. 0. 0. 0.

0. 1. 1. 0. 1. 0. 0.

1. 0. 1. 0. 0. 1. 0.

1. 1. 0. 0. 0. 0. 1.

"code word is:"

0. 0. 1. 1. 0. 0. 1.

1. 0. 1. 1. 1. 0. 0.

1. 1. 0. 1. 0. 1. 0.

1. 1. 1. 0. 0. 0. 1.

0. 1. 1.

"recieved code vector with error"

"correct code word is"

0. 0. 1. 1. 0. 0. 1.