%8b.Determine the generator matrix G' of the appropriate systematic

%(separable) code C'.

%KANISHK

%2021UCA1810

clc; clear; close all;

G=[1 1 0 0 1 0 1;0 1 1 1 1 0 0;1 1 1 0 0 1 1]; G(3,:)=mod(G(3,:)+G(1,:),2);

G(2,:)=mod(G(2,:)+G(3,:),2);

G(1,:)=mod(G(1,:)+G(2,:),2);

sz=size(G); k=sz(1);

n=sz(2); rangeM=2^k-1; M=0:rangeM;

M=de2bi(M,k,'left-msb'); codewords=zeros(8,7); for i=1:size(M,1)

codewords(i,:)=mod(M(i,:)\*G,2); end

codewords

*codewords =*

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| *0* | *0* | *0* | *0* | *0* | *0* | *0* |
| *0* | *0* | *1* | *0* | *1* | *1* | *0* |
| *0* | *1* | *0* | *1* | *0* | *1* | *0* |
| *0* | *1* | *1* | *1* | *1* | *0* | *0* |
| *1* | *0* | *0* | *1* | *1* | *1* | *1* |
| *1* | *0* | *1* | *1* | *0* | *0* | *1* |
| *1* | *1* | *0* | *0* | *1* | *0* | *1* |
| *1* | *1* | *1* | *0* | *0* | *1* | *1* |

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