Experiment 1: **Implement on a data set of characters the CRC . AIM:**

**Program:**

#include<stdlib.h>

#include<conio.h>

#include<stdio.h>

int main()

{

int i,j,n,g,a,arr[20],gen[20],b[20],q[20],s;

printf("Transmitter side:");

printf("\nEnter no. of data bits:");

scanf("%d",&n);

printf("Enter data:");

for(i=0;i<n;i++)

scanf("%d",&arr[i]);

printf("Enter size of generator:");

scanf("%d",&g);

do{

printf("Enter generator:");

for(j=0;j<g;j++)

scanf("%d",&gen[j]);

}

while(gen[0]!=1);

printf("\n\tThe generator matrix:");

for(j=0;j<g;j++)

printf("%d",gen[j]);

a=n+(g-1);

printf("\n\tThe appended matrix is:");

for(i=0;i< j;++i)

arr[n+i]=0;

for(i=0;i< a;++i)

printf("%d",arr[i]);

for(i=0;i< n;++i)

q[i]= arr[i];

for(i=0;i< n;++i)

{

if(arr[i]==0)

{

for(j=i;j<g+i;++j)

arr[j] = arr[j]^0;

}

else

{

arr[i] = arr[i]^gen[0];

arr[i+1]=arr[i+1]^gen[1];

arr[i+2]=arr[i+2]^gen[2];

arr[i+3]=arr[i+3]^gen[3];

}

}

printf("\n\tThe CRC is :");

for(i=n;i< a;++i)

printf("%d",arr[i]);

s=n+a;

for(i=n;i<s;i++)

q[i]=arr[i];

printf("\n");

for(i=0;i<a;i++)

printf("%d",q[i]);

}

**Output:**

Transmitter side:

Enter no. of data bits:8 Enter data:1 0 1 0 0 0 0 1 Enter size of generator:4 Enter generator:1 0 0 1 The generator matrix:1001

The appended matrix is:10100001000 The CRC is :111

10100001111