Program:- 13

Aim: Write a program for error detection code using CRC-CCITT (16-bits)

```
#include <stdio.h>
    int arr[17];
    void XOR [int x[], int y[])
    {
     int k = 0;
     for (int i = 1; i < 16; i++)
     {
       if (x[i] == y[i])
          arr [k++] = 0;
       else
          arr[i] = 1;
      }
    }
     void main ()
{
    int dd [17], div [33], zc [17], i, k;
        printf ("Enter dataword");
          for (i = 0; i < 17; i++)
                scanf ("%d", &div [i]);
        for (i = i ; i < 33; i++)
             div [i] = 0;
          for [i = 0; i < 17; i++)
             ze [i] = 0;
       printf ("Enter dividend");
          for ( i = 0; i < 17; i++)
                scanf ("%d, & add[i]);
             i = 0; k = 0;
```

```
for (i=i ; i<17 ; i++)
    arr[k++]= div [i];
while(i<33)
 {
  if ( arr[0]= = 0)
     xor (arr, ze);
 else
  xor (arr, dd);
   arr [16]= div [i++];
 }
k=0
for [i= 17;  i<33; i++)
     div [i]= arr [k++];
  printf( "Codeword ");
    for (i= 0; i<33 ; i++)
      printf ("%d", div[i]);
    for (i=0 ; i<17 ; i++)
       arr [i]=0
  printf (" At reciever end");
    k=0;
    for (i=i ; i<17; i++)
       arr [k++] = div [i];
   while [i<33)
   {
    if (arr [0]==0)
        xor (arr, ze);
   else
     xor ( arr, dd);
     ar [16] = div [i++];
   }
```

```
k=0;
for(i=17; i<33; i++)
    div[i]=arr[k++];
printf("codeword");
    for(i=0; i<33; i++)
    printf("%d", div[i]);
}
```

Output:

Enter dataword

10 11 00 1111 00.10111

Enter divisor

10 001000000 100011

codeword: 10 11 00.1111 00 10 111 00 00 0000 00 11 011

At receiver end

codeword: 10 11 00 11 11 00 10 11 10 000 0000000000