13. Write a program for error detecting code using CRC-CCITT (16-bits).

```
Code:
#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],ze[17],i,k;
  printf("Enter the dataword \n");
  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 \n");
for(i=0;i<17;i++)
  scanf("%d",&dd[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("\nAt receiver end \n");
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]);
}</pre>
```

Output:

Observation:

```
Pl08/23
                      Lab - 13.
     Aim: Write a program for error detection using CRC=CC177
      (16-bits).
     #Finclude < statio. h>
     int arreit];
      (CI) thi , (I)x this rax blov
        int de K=0;
        for clut 1213 (<16; 14+)
        ([1]b==(1)x)+1
          arr [x++]=0;
      else
          arreiJ=1;
     Volt main 171
     int dd[F], drv[33], ze[I7], i, K;
     printfl" Enter dataword in");
     for (1=0; 1517; 1+4)

Sent ("old", bdiv(i));
     for (i= 1) (233) ita)
     div(1)=0;
     for ( 1=0) | < 17 ) 177)
     Ze [i] = 0;
    printf("Enter dividend(");
for (1=0; 1<13; 1+4)
      Scant (" God", 60 dd[i]);
     1=0;
     16=01,
```

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	PAGE A
	for (1213 i <175 i+4)
	(Cigarlo a Chtx) cap
	while (1 < 33) 1
	if(ams(0)==0)
	xor (ore, ze);
	else
	xos(ars, dd);
	y = 2007 = div[P++];
_	16-07
	Aoo (1=17) 1< 33, 1++7
	div(i)=arr(k++);
	Print+1" code word");
	£=18=0:1233:14+)
	printf (" marelado "div Ci);
	printf (" control do "dix (i)"); for (i=0) i<17; 1+1)
	arr (1) = 0;
	printf("In At receiver end in")
	k=0',
	Pos(1=1) (<17) (++)
-	and [K++]= div(ix)
	while (1×33) d
	1+ (arr(0]==0)
~-	xor(arr, ze);
~-	else
	our CIPJ=9/1/14+];
	arr (16)=dlufi+7;
	20',
_	or (1=14) i < 33) i++)
	div(i)=ars [x++];
	0.23

	RANKA—
	PAGE
	print(" Code word! ");
	Por (1-0;123;14+) B print + (" 40 d", div (D);
	b print f (" do d", div CD);
	I and the second
1	
	Output! Enter datawood
1	10110011110010111
	Enter dividend
	10001000000100011
	Codeward: 1011001111001011100000000000011011
	At receiver end.
	Codewood : 101100111100101110000000000000000000
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