CYCLE 2 PROGRAM 1

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;
   }
}

int 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]);

    return 0;
}
```

Output: