WRITE A PROGRAM TO LAB-7

ERROR DETECTION USING CRC-CCITT (16 bit)

```
#include <stdio.h>
#include <string.h>
#define N strlen(gen_poly)
char data[28];
char check_value[28];
char gen_poly[10];
int data_length, i, j;
void XOR() {
for(j=1; j<N; j++)
check_value[j] = ((check_value[j] == gen_poly[j])
        ? '0' : '1'); }
void crc() {
for(i=0; i<N; i++)
   check_value[i] = data[i];
do {
    if(check_value[0] == '1')
       XOR();
 for(j=0; j<N-1; j++)
check_value[j] = check_value[j+1];
check_value[j] = data[i++];
} while(i<=data_length+N-1);
}
void receiver() {
printf("Entered the received data:");
scanf("%s", data);
printf("Data received: %s", data);
crc();
for(i=0; (i<N-1) && (check_value[i] != '1'); i++
if(i<N-1)
```

```
printf("\n Error detected");
else
printf("\n No error detected");
}
int main()
{
printf("Enter Codeword");
scanf("%s", data);
printf("Enter Generating polynomial");
scanf("%s", gen-poly);
data-length = strlen(data);
for(i=data-length; i<data-length+N-1; i++)
data[i] = '0';
printf("\n Data with zeros: %s", data);
crc();
printf("CRC value is: %s", check-value);
for(i=data-length; i<data-length+N-1; i++)
data[i] = check-value[i-data-length];
printf("Final data sent is %s", data);
receiver();
return 0;
}
```

OUTPUT :-

```
Enter Codeword : 10110101
Enter Generating Polynomial : 1010
Data with zeros : 10110101010000
CRC value is 000
Final data to be sent is :- 10110101010000
Enter Data Received :- 10110101010000
Error detected.
```

Enter codeword : 1011010101
Enter generating Polynomial :- 1010
Data with zeros :- 1011010101 0000
CRC value is : 000.
Data sent to Receiver :- 1011010101 0000
No errors detected.

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