# ASSIGNMENT-7

Q) Write a c-program to detect error checking using 2-D parity.

A)

```
#include <stdio.h>
int main(){
  int m, n, arr[10][10], arr1[10][10];
  int i, j;
  printf("\n---- Sender ----\n");
  printf("Enter Row Size -->> ");
  scanf("%d", &m);
  printf("\n");
  printf("Enter Column Size -->> ");
  scanf("%d", &n);
  printf("\n");
  printf("Give The 1st Array inputs -->> ");
  printf("\n");
  for(i=0; i<m; i++){
    for(j=0; j<n; j++){
      scanf("%d", &arr[i][j]);
    }
  }
  printf("\n Printing The Matrix -->>\n");
```

```
for (i=0; i<m; i++){
    for (j=0; j<n; j++){
        Printf ("%d", arr[i][j]);
    }
    Printf ("\n");
}
Printf ("\n checking Even Parity Row wise -->> ");
for (i=0; i<m; i++){
    int count1=0;
    for(j=0; j<n; j++){
        if (arr[j][i] == -1)
            count1++;
    }
    if (count1 % 2 == 0)
        arr[m][i]=0;
    else arr[m][i] = 1;
}
Printf ("\n checking Even Parity Column wise -->>
    for (i=0; i<m+1; i++){
        int count=0;
        for (j=0; j<n; j++){
            if (arr[i][j] == 1)
                count++;
        }
```

```
if (Count % 2 == 0)
        arr[i][n] = 0 ;
    else
        arr[i][n] = 1;
}
Printf ("\n After checking the even parity -->>\n");
    for (i=0 ; i<m+1; i++){
        for(j=0; j<n+1; j++){
            Printf("%d", arr[i][j]);
        }
        Printf ("\n");
    }
    printf("\n ---Receiver ---\n");
    Printf ("Given the 2nd Array input :-->> ");
    Printf ("\n");
    for (i=0; i<m ; i++){
        for (j=0; j<n; j++){
            Scanf ("%d", & arr1[i][j]);
        }
    }
Printf ("\n Printing the Matrix -->>\n");
 for (i=0; i<m; i++){
    for(j=0; j<n; j++){
     printf("%d ", arr1[i][j]);
    }
```

```
Printf("\n");
}
Printf("\n Checking the error and Printing the position
   of error - ->>\n");
   for(i=0; i<m; i++){
      for(j=0; j<n; j++){
        if (arr[i][j] != arr1[i][j])
            Printf ("Error At -- Row -->> %.d Column
          -->> %.d -- Position", i, j);
        }
        Printf ("\n");
      }
      return 0;
    }
```

output:- Give the 1st array inputs - >>

```
1 0 1
0 0 1
1 1 0
```

Printing the matrix - >>

```
1 0 1
0 0 1
1 1 0
```

checking Even Parity Row wise - ->>

checking Even Parity Column wise ->>

After checking the even parity - ->>

1 0 1 0
0 0 1 1
1 1 0 0
0 1 0 1

- - - Receiver - - -

Given the 2D Array input - ->>

1 1 1
0 0 1
1 1 0

Printing the matrix - ->>

1 1 1
0 0 1
1 1 0

Checking the error and printing the position of error - ->> Error at -- Row ->> & column ->> (-- Position