Date : 30-08-2024   **Execution (15 Marks)**

1. Write a C program for the following and find the time and space complexity.

     a. Reverse a string using recursion and iteration

     b. Copy one string to another using recursion

     c. Search an element in an array using recursion

     d. To implement binary search using recursion

2. Write a program to print following :

     i)

     ****

     ****

     ****

     ****

     ii)

     *

     **

     ***

     ****

     *****

     iii)

     *

     **

     ***

     ****

     *****

iv)

```
*
***
*****
*******
*********
```

v)

```
1
222
33333
4444444
555555555
```

vi)

```
1
212
32123
4321234
543212345
```

3. Write a program to calculate the sum of following series where n is input by user. Write the recurrence relation and find the time complexity.

$$1 + 1/2 + 1/3 + 1/4 + 1/5 +…………1/n$$