Recursion

i) Fibonacci Series

```c
#include <stdio.h>

int fibbonacci (int n)
{
    if (n <= 1)
    {
        return n;
    }
    return fibonacci (n-1) + fibonacci (n-2);
}

void main ()
{
    int n, i;
    printf ("Enter Number of Terms in Fibonacci Series: ");
    scanf ("%d", &n);

    printf ("The Fibonacci Series: ");
    for (i = 0; i < n; i++)
    {
        printf ("%d", fibonacci (i));
    }
}
```

Output

Enter Number of Terms in Fibonacci Series: 10
Fibonacci Series: 0 1 1 2 3 5 8 13 21 34

ii Factorial

```c
#include <stdio.h>
int factorial (int n)
{
        if (n <= 1)
        {
                return 1;
        }
        return n * factorial (n-1);
}


void main ()
{
        int num;
        printf("Enter Number to Calculate Factorial: ");
        scanf(" %d ", &num);

        if (num < 0)
        {
                printf(" Factorial Not Possible. ");
        }
        else
        {
                printf(" factorial of %d is %d \n ", num, factorial(num));
        }
}
```
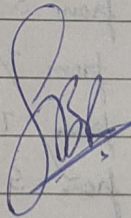
Output

Enter Number to Calculate Factorial: 6

Factorial of 6 is 720

ii Factorial
#include <stdio.h>

iii) Tower of Hanoi

```c
#include <stdio.h>
void TOH (int n, char s, char t, char d)
{
    if (n == 1)
    {
        printf("Move Disk %d from %c to %c \n", n, s, d);
        return;
    }
    TOH(n-1, s, d, t);
    printf("Move Disk %d from %c to %c \n", n, s, d);
    TOH(n-1, d, t, s, d);
}

Void main()
{
    int n = 3;
    TOH(n, 'S', 'T', 'D');
}
```
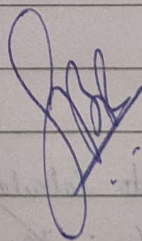
Output

Move Disk 1 from S to D
Move Disk 2 from S to T
Move Disk 1 from D to T
Move Disk 3 from S to D
Move Disk 1 from T to S
Move Disk 2 from T to D
Move Disk 1 from S to D