**Understanding Recursive Algorithms**

1. **Explain the concept of recursion and how it can simplify certain problems.**

* Recursion is a programming concept ,where a function or method calls itself.

Due to Recursion the problems are divided into subproblems. The same logic repeats until the base case is satisfied.

**ANALYSIS**

**(4) (a) Discuss the time complexity of your recursive algorithm.**

**->** For ‘**n**’ years ,we make the recursive call ‘**n**’ times, so the time complexity is **O(n).**

Due to Recursion stack the space complexity is **O(n).**

**(b)** **Explain how to optimize the recursive solution to avoid excessive computation.**

**->** We can use Iteration instead,

Then the time complexity will be O(n),and space complexity will be O(1),since there is no recursion stack .

We can also use direct formula where the time complexity will be O(1).