Recursive Algorithm Complexity Analysis

Analyze the complexity of the following problems and explain how to solve them.

Problem 1. Given an input string of numbers, find all combinations of numbers that can be formed using digits in the same order.

Problem 2. Given a set of characters and a positive integer k, print all possible strings of length k that can be formed from the given set.

Problem 3. Write a program to print all the combinations of factors of given number n.

Problem 4. Given two numbers x and n, find a number of ways x can be expressed as sum of $n-th$ power of unique natural numbers.

Problem 5. Tower of Hanoi is a mathematical puzzle where we have three rods and n disks. The objective of the puzzle is to move the entire stack to another rod, obeying the following simple rules:

- Only one disk can be moved at a time.
- Each move consists of taking the upper disk from one of the stacks and placing it on top of another stack i.e. a disk can only be moved if it is the uppermost disk on a stack.
- No disk may be placed on top of a smaller disk.