

# **Problems based on Recursion – 4**

## **Assignment Questions**

# Assignment Questions

**Q1 - Given a number  $n$ , print the following pattern without using any loop.**

(Easy)

$n, n-5, n-10, \dots, 0, 5, 10, \dots, n-5, n$

There should be 0 or at most one occurrence of negative number in the series.

**Sample Input:**  $n = 16$

**Sample Output:** 16, 11, 6, 1, -4, 1, 6, 11, 16

**Sample Input:**  $n = 10$

**Sample Output:** 10, 5, 0, 5, 10

**Q2 - Find  $m$ -th summation of first  $n$  natural numbers where  $m$ -th summation of first  $n$  natural numbers is defined as following:**

(Medium)

If  $m > 1$ :  $SUM(n, m) = SUM(SUM(n, m - 1), 1)$

Else :  $SUM(n, 1) = \text{Sum of first } n \text{ natural numbers.}$

**Sample Input:**  $n = 3, m = 2$

**Sample Output:**  $SUM(3, 2) = 21$

Explanation :  $SUM(3, 2)$   
                   $= SUM(SUM(3, 1), 1)$   
                   $= SUM(6, 1)$   
                   $= 21$

**Sample Input:**  $n = 4, m = 1$

**Sample Output:**  $SUM(4, 1) = 10$

**Q3 - Given a number  $n$  which denotes the number of variables in the equation and a  $val$  which denotes the sum of these variables, count the number of such non-negative integral solutions that are possible.**

(Medium)

**Sample Input:**  $n=5, val=1$

**Sample Output:** 5

**Explanation:** The possible solutions are

0,0,0,0,1  
0,1,0,0,0  
0,0,0,1,0  
0,0,1,0,0  
0,0,0,0,1