Amrita Vishwa Vidyapeetham
Amrita School of Computing, Amritapuri
B.Tech. Computer Science and Engineering (AI)
Fourth Semester
22AIE212 Design and Analysis of Algorithms

Lab Sheet 3

<u>Recursion</u>

Write Recursive algorithms for the following problems. Implement your algorithm, write
the recurrence relation, solve it, and find the asymptotic time complexity
1. Print the sum of the first N natural numbers.
2. Print the product of the first N natural numbers.
3. Print the Nth Fibonacci number.
4. Calculate x^y.
5. Print the first N natural numbers.
6. Print the first N natural numbers in reverse order.
7. Find the GCD(HCF) of two numbers.
8. Print the elements of an array.
9. Print the elements of an array in reverse order.
10. Reverse a given number.
11. Check if an array is sorted or not.
12. Write a recursive algorithm to find the median of median in O(n) time.
13. Write a recursive algorithm to find the kth largest element.