Department of Computer Science and Engg.- NITK Surathkal

**CO-204 Data Structures and Algorithms Lab**

**Assignment sheet- 1** Due Date: **18th August 2017**

1. Given a randomly ordered array of ' n' elements. Determine the kth smallest element in the set.

2. Given the set of 'n' distinct numbers. Find the length of the longest monotone increasing subsequence.

3. An array A contains (n-1) unique intergers in the range [0,n-1], that is there is one number from this range that is not in A. Design an O(n) time algorithm for finding that number. You are allowed to use only O(1) additional space besides the array A itself.

4. Design an algorithm for power evaluation that is built upon a base 3 strategy rather that the current base 2 method. Compare the result for this new method with the current algorithm.

5.Design and implement a recussive algorithm to solve the Tower of Hanoi problem for one or more disks.