**Design and Analysis of Algorithm**

**Assignment – I**

1. Yash wants to buy to a phone to his mother. In the shop, the phones are in the unsorted list. He wants to check the phone features based on the price of the adjacent phone. Kindly help him to suggest the comparison-based algorithm which takes a **more number of swaps**to arrange it in order. The lists are, 50, 25, 5, 20,10. Also give the best and worst case of this scenario with time complexity.
2. Deduce the time complexity of a given relation using Recursion Tree approach.

T(n) = T(n/4) + T(n/2) + n2 ; n>1

1 ; n=1

1. (i) Given f(n)= 3n2+2n+5; g(n)=n2. Show that f(n)=O(g(n)) and g(n)=θ(f(n)).

(ii) Consider problem P and provide various possible algorithm design techniques to solve the given problem.