CSN-102 : Data Structures
Tutorial (Searching and Sorting)

Q.1 Suppose there are seven cars parked in the parking area. The parking caretaker gave a number to the car owner, and the same number was stamped on the vehicle. He parked the car in ascending order, and the sequence of the car was {3,10,15,20,35,40,60}. Find the location of car number 15 using the binary search algorithm. Write all the steps in detail.

Q.2 Suppose you have an array of n numbers containing some positive and negative values. You have to arrange the numbers such that all positive numbers occur before negative numbers. Find the minimum number of exchanges required in the worst case.

Q.3 What is the worst-case time complexity for the quicksort algorithm for choosing n/4th smallest element as a pivot in O(n) time?

Q.4 What is the largest input size that can be sorted by the mergesort algorithm within 6 minutes if it takes 30 seconds to sort an input of size 64 in the worst case?

Q.5 Given an array A[] of strings such that A= { "Nitin", "Anshul", "Ravi" , "Bharat", "Prateek"}. Write a pseudocode to sort all string elements in sorted order using bubble sort algorithm.