**SEARCHING AND SORTING TECHNIQUES**

1. State and explain insertion sort with example.

2. Rearrange following numbers using quick sort:

10, 6, 3, 7, 17, 26, 56, 32, 72

1. Write a program to sort the elements using radix sort.
2. Describe insertion sort algorithm and trace the steps of insertion sort for sorting the list- 12, 19, 33, 26, 29, 35, 22, 37. Find the total number of comparisons made.
3. “Selecting the pivot element plays vital role in Quick sort” support this statement with proper explanation. Explain various choices available for selecting the pivot.
4. Give an algorithm for quick sort and explain its time complexity. Trace the algorithm for the following data: 65 ,70 ,75 ,80 ,85 ,60 ,55 ,50 ,45.
5. Explain the quick sort algorithm with an example.
6. What are the limitations of insertion sort?
7. How to select pivot element in quick sort? Explain how partition is done in quick sort with example.
8. Explain the step-by-step procedure for sorting the following unordered list of elements 52, 37, 63, 14, 17, 8, 6, 25.using Quick sort and Heap sort techniques.
9. Arrange the following list of elements in ascending order using heap sort: 9, 3, 5, 27, 4, 67, 18, 31, 13, 20, 39, 21. Clearly show the sorting process at each step.
10. Sort the following numbers using Insertion sort. For the Given Numbers : 34,8, 14, 61,4, 53,81, 47.
11. Explain the requirement that the data must be sorted for binary search.
12. Write an algorithm to implement Bubble sort with suitable example.
13. Write an algorithm to implement Binary search with suitable example.
14. Write an algorithm to implement Linear search with suitable example.
15. Write an algorithm to implement Selection sort with suitable example.
16. Arrange the following list of elements in ascending order using selection sort: 9, 3, 5, 27, 4, 67, 18, 31, 13, 20, 39, 21. Clearly show the sorting process at each step.