**Unit Test Question Bank**

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| 1. Define algorithm and its characteristics. |
| 1. Define the following Terms –I)Data ii) Data Structure iii) persistent data structure iv) Linear and non-Linear Data structure with example. |
| 1. Discuss divide and Conquer Strategy with a Suitable Example. Also Comment on time analysis. |

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| 1. What is ADT? Write ADT with an array. |
| 1. 5) Define space complexity and time complexity of an algorithm. Also Discuss all asymptotic Notations used in the complexity of algorithm analysis. |
| 1. Explain Greedy Strategy with suitable example. |
| 1. Explain Linear search and binary search with example. State its time complexity . | |
| 1. Explain insertion sort algorithm and sort the given list using insertion sort : 2. 1) List : 7, 4, 10, 6, 3, 12, 1, 8, 2, 15, 9, 5 .Discuss its time complexity. | |
| 1. What is Sparse Matrix? Explain its both representation with an example. | |
| 1. Explain bubble sort algorithm and sort the given list using bubble sort : 2. 1) List : 55, 85, 45, 11, 34, 05, 89, 99, 67 Discuss its time complexity . | |
| 1. 13) Explain Fibonacci search and index sequential search with example. State its time complexity | |
| 1. Explain selection sort with suitable example. State its complexity. | |

15) Explain Merge sort. Sort following example using Merge Sort :

1. List : 18, 13, 12, 22, 15, 24, 10, 16, 19, 14, 30.
2. List : 55, 85, 45, 11, 34, 05, 89, 99, 67 . Discuss its time and space complexity.

16) Explain quick sort and Sort the following numbers using quick sort :

1. List : 39, 09, 81, 45, 90, 27, 72, 18
2. List : 25, 82, 17, 23, 38, 7, 64, 86, 21 State its time complexity and space complexity.

17) Write short note on stability of sorting. Compare bubble, insertion and selection sort

with one example and discuss time complexity.

18) Write an algorithm for searching an element using binary search. Discuss the time

complexity of algorithm in best case and worst case.