45 Lecture - CS301

Important Mcqs

1. **Which of the following is not an example of Divide and Conquer algorithm?**
   a) Binary Search
   b) QuickSort
   c) Bubble Sort
   d) MergeSort

Answer: c) Bubble Sort

2. **What is the time complexity of QuickSort algorithm?**
   a) O(n)
   b) O(n^2)
   c) O(n log n)
   d) O(log n)

Answer: c) O(n log n)

3. **In MergeSort algorithm, what is the time complexity of merging two sorted arrays of size n?**
   a) O(n)
   b) O(n^2)
   c) O(log n)
   d) O(1)

Answer: a) O(n)

4. **Which of the following is not a step in the Divide and Conquer algorithm?**
   a) Divide
   b) Conquer
   c) Combine
   d) Increment

Answer: d) Increment

5. **Which of the following is an example of a problem that can be solved using Divide and Conquer algorithm?**
   a) Finding the maximum value in an unsorted array
   b) Counting the number of occurrences of a given element in an unsorted array
   c) Sorting an array in ascending order
   d) Finding the shortest path between two nodes in a graph

Answer: c) Sorting an array in ascending order

6. **What is the space complexity of MergeSort algorithm?**
   a) O(n)
   b) O(n^2)
   c) O(log n)
   d) O(1)

Answer: a) O(n)

7. **Which of the following algorithms uses Divide and Conquer approach to find the closest pair of points in a plane?**
   a) Insertion Sort
   b) Selection Sort
   c) MergeSort
   d) Divide and Conquer algorithm for Closest Pair problem

Answer: d) Divide and Conquer algorithm for Closest Pair problem

8. **What is the worst case time complexity of Binary Search algorithm?**
   a) O(1)
   b) O(log n)
   c) O(n)
   d) O(n^2)

Answer: b) O(log n)

9. **Which of the following is an advantage of using Divide and Conquer approach?**
   a) It is easy to implement
   b) It always gives the optimal solution
   c) It reduces the time complexity of the algorithm
   d) It is not affected by the size of the input

Answer: c) It reduces the time complexity of the algorithm

10. **Which of the following is a disadvantage of using Divide and Conquer approach?**
    a) It is not suitable for solving large problems
    b) It requires extra space for storing the intermediate results
    c) It is difficult to understand and implement
    d) It always gives the correct solution

Answer: b) It requires extra space for storing the intermediate results