# 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)
- u) U(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