# 9 Lecture - CS502

## **Important Mcqs**

#### 1. What is the 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)

#### What is the space complexity of bubble sort algorithm?

a. O(1) b. O(n) c. O(n^2) d. O(log n) Answer: a. O(1)

Which complexity class does the problem of factoring large integers belong to?

a. P
b. NP
c. NP-hard
d. NP-complete

Answer: d. NP-complete

Which complexity class does the problem of finding the shortest path in a graph belong to?

a. P b. NP c. NP-hard d. NP-complete

Answer: a. P

What is the worst-case time complexity of the brute-force algorithm for the traveling salesman problem?

a. O(n!) b. O(2^n) c. O(n^2) d. O(log n)

Answer: a. O(n!)

Which of the following is not a complexity class?

a. PSPACE b. PTIME c. EXP d. NPSPACE Answer: d. NPSPACE

What is the time complexity of the merge sort algorithm? a. O(1)

b. O(n) c. O(n log n) d. O(n^2) Answer: c. O(n log n)

### Which of the following is an example of a decision problem?

- a. Sorting a list of integers
- b. Finding the shortest path in a graph
- c. Determining whether a number is prime
- d. Factoring a large integer

Answer: c. Determining whether a number is prime

### Which of the following complexity classes is believed to be strictly larger than P?

- a. NP
- b. PSPACE
- c. EXP
- d. NP-complete

Answer: c. EXP

#### What is the time complexity of the naive algorithm for matrix multiplication?

a. O(1) b. O(n) c. O(n^2) d. O(n^3) Answer: d. O(n^3)