

# Student Exam Report

Exam: Algorithms (ID: 34)

Student: Mostafa Saad (ID: 123458786)

Total Questions: 10

Correct Answers: 8

Percentage: 80%

Result: Pass

1) Which of the following sorting algorithms has the worst-case time complexity of  $O(n^2)$ ?

Merge Sort

Correct Answer: Quick Sort (with poor pivot selection)

2) Which data structure is used in the implementation of a breadth-first search (BFS)?

Queue

Correct Answer: Queue

3) Which of the following is true about Dijkstra's Algorithm?

It is a greedy algorithm

Correct Answer: It is a greedy algorithm

4) What is the main idea behind the divide-and-conquer paradigm?

Iterate through the data linearly

Correct Answer: Solve subproblems separately and combine the results

5) Which of the following problems is solved using dynamic programming?

0/1 Knapsack Problem

Correct Answer: 0/1 Knapsack Problem

6) Binary search can be applied to an unsorted array.

False

**Correct Answer: False**

**7) The time complexity of the best-case scenario for Quick Sort is  $O(n \log n)$ .**

**True**

**Correct Answer: True**

**8) A depth-first search (DFS) uses a queue data structure.**

**False**

**Correct Answer: False**

**9) Dynamic programming is used to solve optimization problems by solving smaller subproblems first.**

**True**

**Correct Answer: True**

**10) Merge Sort is an in-place sorting algorithm.**

**False**

**Correct Answer: False**