

# 7 Lecture - CS502

## Important Mcqs

1. Which of the following is a characteristic of Greedy algorithms?

- A) Always find the optimal solution
- B) Make locally optimal choices
- C) Require backtracking
- D) Can only be used for discrete problems

Answer: B) Make locally optimal choices

Which of the following is an example of a problem that can be solved using a greedy algorithm?

- A) Traveling salesman problem
- B) Knapsack problem
- C) Graph coloring problem
- D) All of the above

Answer: B) Knapsack problem

Which of the following is a disadvantage of greedy algorithms?

- A) Always find the optimal solution
- B) May get stuck in local optima
- C) Are only useful for small problems
- D) Require exhaustive search

Answer: B) May get stuck in local optima

Which of the following is a common technique used to improve greedy algorithms?

- A) Dynamic programming
- B) Backtracking
- C) Randomization
- D) Exhaustive search

Answer: C) Randomization

Which of the following is an example of a greedy algorithm?

- A) Breadth-first search
- B) Depth-first search
- C) Dijkstra's algorithm
- D) Prim's algorithm

Answer: D) Prim's algorithm

Which of the following is a necessary condition for a problem to be solved using a greedy algorithm?

- A) The problem must have optimal substructure
- B) The problem must be a minimization problem
- C) The problem must have only one solution
- D) The problem must be a continuous problem

Answer: A) The problem must have optimal substructure

Which of the following is an example of a problem that cannot be solved using a greedy

**algorithm?**

- A) Minimum spanning tree
- B) Shortest path problem
- C) Maximum flow problem
- D) Traveling salesman problem

**Answer: D) Traveling salesman problem**

**Which of the following is a disadvantage of using a greedy algorithm?**

- A) They are computationally expensive
- B) They always guarantee finding the optimal solution
- C) They require a lot of memory
- D) They may not always find the optimal solution

**Answer: D) They may not always find the optimal solution**

**Which of the following is a heuristic used in some greedy algorithms?**

- A) Randomization
- B) Exhaustive search
- C) Divide and conquer
- D) Backtracking

**Answer: A) Randomization**

**Which of the following is an example of a problem that can be solved using a greedy algorithm with a proof of optimality?**

- A) Huffman coding
- B) Fractional knapsack problem
- C) Job sequencing with deadlines
- D) All of the above

**Answer: B) Fractional knapsack problem**