

Data Structure (CS-303) — UNIT 4 PYQ

ANALYSIS

UNIT-4 IMPORTANT TOPICS

GRAPH BASICS

- Graph terminology
 - Directed graph
 - Undirected graph
 - Weighted graph
-

GRAPH REPRESENTATION

- Adjacency Matrix
 - Adjacency List
-

GRAPH TRAVERSAL

- DFS
 - BFS
-

GRAPH ALGORITHMS

- Minimum Spanning Tree (MST)
- Kruskal Algorithm
- Prim Algorithm

- Dijkstra Algorithm
-

COMPARISON & APPLICATIONS

- DFS vs BFS
 - Kruskal vs Prim
 - Applications of graph
-

MOST REPEATED QUESTIONS

1. DFS Traversal

MOST REPEATED QUESTION

Appeared in:

- June 2024
 - Dec 2025
 - June 2023
 - Dec 2024
-

Expected in Upcoming Exam

 100% HIGHLY EXPECTED

Prepare:

- Algorithm
- Example

- Stack working
 - Applications
-

2. BFS Traversal

 VERY IMPORTANT

Appeared in:

- June 2024
 - Dec 2024
 - June 2023
-

Expected

 HIGH chance

Prepare:

- Queue working
 - Example traversal
 - Applications
-

3. Difference Between DFS and BFS

 REPEATED MANY TIMES

Appeared in:

- June 2023
- Dec 2025

- Dec 2024
-

Expected

 HIGHLY EXPECTED

4. Graph Representation

 VERY IMPORTANT

Appeared in:

- June 2024
 - June 2023
-

Expected

 HIGH chance

Prepare:

- Adjacency Matrix
 - Adjacency List
 - Advantages/disadvantages
-

5. Kruskal Algorithm

 VERY IMPORTANT

Appeared in:

- Dec 2025
 - June 2024
 - Dec 2024
-

Expected

 HIGHLY EXPECTED

Prepare:

- MST
 - Steps
 - Example
 - Edge sorting
-

6. Prim Algorithm

 IMPORTANT

Appeared in:

- June 2023
 - Dec 2025
-

Expected

 HIGH chance

Prepare:

- MST formation
 - Vertex selection
 - Comparison with Kruskal
-

7. Dijkstra Algorithm

 VERY IMPORTANT

Appeared in:

- June 2024
 - Dec 2024
 - June 2023
-

Expected

 HIGHLY EXPECTED

Prepare:

- Shortest path
 - Distance updating
 - Applications
-

8. Directed and Undirected Graph

Appeared in:

- June 2023
 - Dec 2024
-

Expected

Moderate to High

Prepare:

- Definitions
 - Examples
 - Differences
-



MOST EXPECTED QUESTIONS FOR UPCOMING EXAM

TOP 10 PREDICTED QUESTIONS

1.

Explain DFS traversal with example.

2.

Explain BFS traversal with example.

3.

Differentiate DFS and BFS.

4.

Explain graph representation methods.

5.

Explain Kruskal algorithm with example.

6.

Explain Prim algorithm with example.

7.

Explain Dijkstra shortest path algorithm.

8.

Differentiate directed and undirected graph.

9.

Define MST and explain its properties.

10.

Compare different graph algorithms.

MOST IMPORTANT 14-MARK QUESTIONS

VERY HIGH PROBABILITY

1.

Explain DFS and BFS with example.

2.

Explain graph representation and traversal.

3.

Explain Kruskal and Prim algorithms.

4.

Explain Dijkstra shortest path algorithm.

5.

Compare different graph algorithms.

FINAL EXAM STRATEGY

FIRST PRIORITY

DFS

BFS

✓ Kruskal

✓ Dijkstra

SECOND PRIORITY

✓ Graph representation

✓ Prim algorithm

✓ DFS vs BFS

THIRD PRIORITY

✓ Directed/Undirected graph

✓ MST properties

✓ Applications of graphs