

Graph-based questions asked by top companies

TCS Graph Questions

1. **Number of Provinces**

Leetcode 547

Use DFS/BFS/Union-Find to find the number of connected components in an undirected graph.

2. **Journey to the Moon**

(HackerRank)

Count the number of valid astronaut pairs from different countries using graph components.

3. **Detect Cycle in an Undirected Graph**

Use DFS with parent tracking or Union-Find.

4. **Find the Town Judge**

Leetcode 997

Use in-degree and out-degree to identify the judge.

5. **Clone Graph**

Leetcode 133

BFS or DFS to copy a graph with references.

Wipro Graph Questions

1. **Is Graph Bipartite?**

Leetcode 785

Use BFS or DFS with coloring.

2. **Flood Fill**

Leetcode 733

Treat grid as a graph, use DFS/BFS.

3. **Find Connected Components in Graph**

DFS or BFS on each unvisited node.

4. **Course Schedule**

Leetcode 207

Use Topological Sort to detect cycle in a DAG.

5. **Network Delay Time**

Leetcode 743

Dijkstra's Algorithm for shortest path.

6.

Infosys Graph Questions

1. Minimum Spanning Tree (Prim/Kruskal)

Common problem for finding minimal network cabling.

2. Path Existence Between Two Nodes

DFS or BFS from source to destination.

3. Rotting Oranges

Leetcode 994

Multi-source BFS in grid graph.

4. Number of Islands

Leetcode 200

DFS/BFS in 2D matrix.

5. Alien Dictionary (Topological Sort)

Create graph from word order, apply topo sort.

Capgemini Graph Questions

1. Cycle Detection in Directed Graph

Use DFS with recursion stack.

2. Course Schedule II

Leetcode 210

Topological Sort with ordering.

3. Connected Cells in a Grid

DFS on 8 directions (like Number of Islands).

4. Graph Coloring Problem

Check if a graph can be colored with at most m colors (Backtracking).

5. Find Eventual Safe States

Leetcode 802

Reverse graph and do topological sort.

Cognizant Graph Questions

1. Reconstruct Itinerary

Leetcode 332

Hierholzer's Algorithm on Eulerian path.

2. Accounts Merge

Leetcode 721

Union-Find or DFS on graph of email connections.

3. Shortest Path in Binary Matrix

Leetcode 1091

BFS from (0,0) to (n-1,n-1).

4. Critical Connections in a Network (Bridge Detection)

Leetcode 1192

Tarjan's Algorithm for bridges.

5. Word Ladder

Leetcode 127

BFS on word transformations.

Accenture Graph Questions

1. Redundant Connection

Leetcode 684

Union-Find to detect the edge forming a cycle.

2. Graph Valid Tree

Check if connected and acyclic.

3. Cheapest Flights Within K Stops

Leetcode 787

Modified Dijkstra / BFS with level tracking.

4. Employee Importance

Leetcode 690

DFS/BFS on tree-like graph.

5. Word Ladder II

Leetcode 126

BFS with path tracking.

Deloitte Graph Questions

1. All Paths From Source to Target

Leetcode 797

Backtracking/DFS from node 0 to N-1.

2. Count All Paths Between Two Nodes

DFS with path counter.

3. Reorder Routes to Make All Paths Lead to the City Zero

Leetcode 1466

DFS + edge direction logic.

4. Minimum Moves to Reach Target with Rotations

Leetcode 1210

BFS on a 2D grid with state rotations.

5. Evaluate Division

Leetcode 399

Build graph and use DFS for division queries.