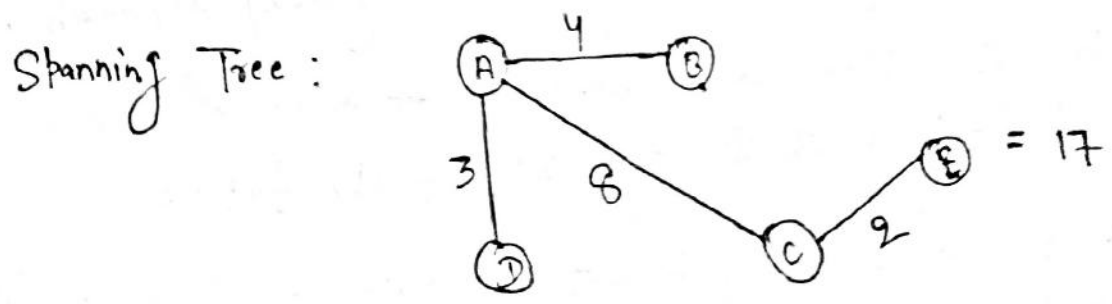
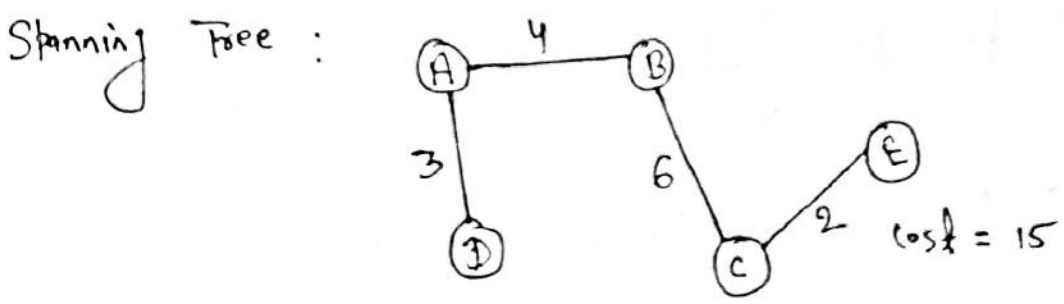
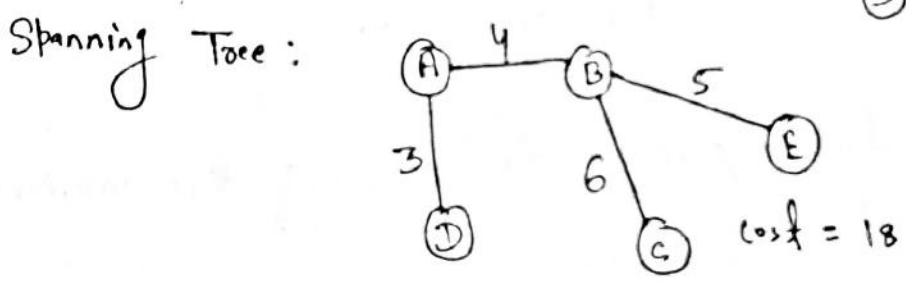
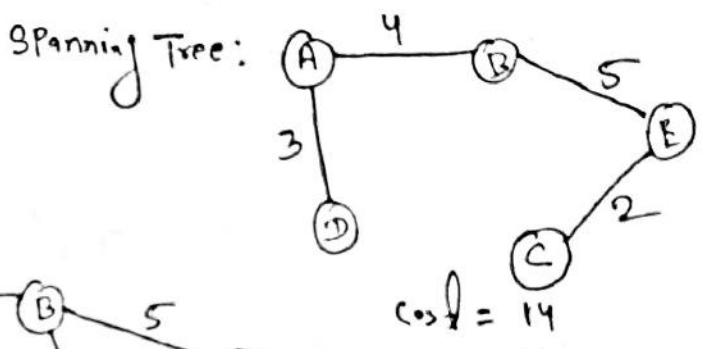
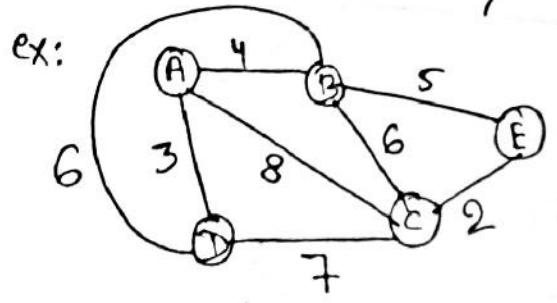


Minimum Spanning Tree

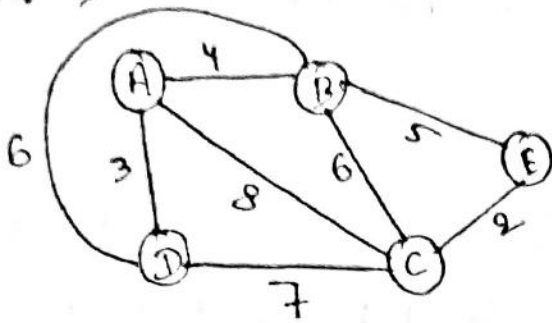
Let $G = \langle V, E \rangle$ is a connected weighted undirected graph.

Spanning tree of a graph consists of all vertices and some of the edges, so that the graph does not contain a cycle.

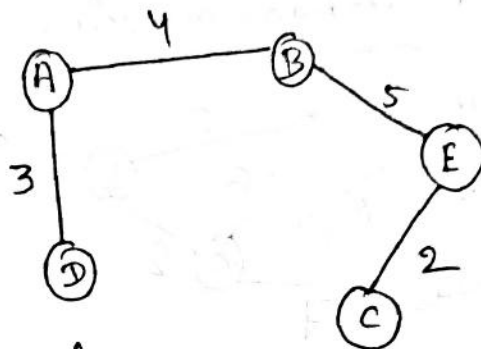


Minimum Spanning Tree: Spanning Tree of minimum cost/weight/length.

ex: →



Minimum Spanning Tree:



Total cost = 14

There are two algorithms for solving the minimum spanning-tree problem.

↳ Kruskal's algorithm

↳ Prim's algorithm.

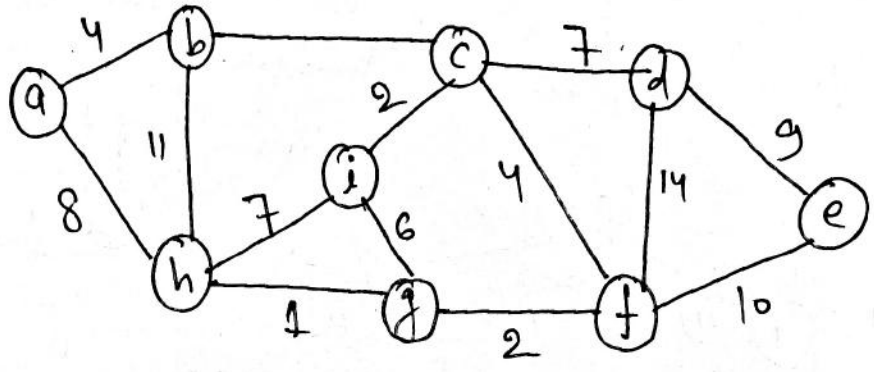
Note: Both algorithms are based on greedy approach.

Greedy approach: - Make the best ~~choice~~ available choice at each step without thinking of the future

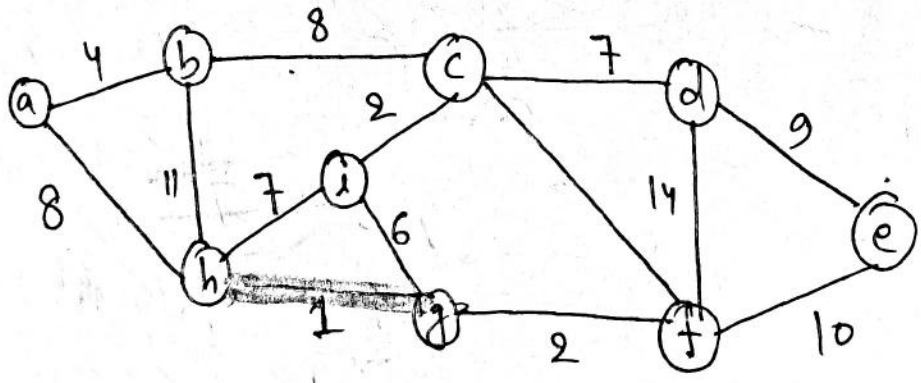
Note → Such a strategy is not generally guaranteed to find globally optimal solutions to problems.

↳ Kruskal's algorithm: Kruskal's algorithm are a greedy algorithm that finds a MST for a connected weighted undirected graph.

ex: →

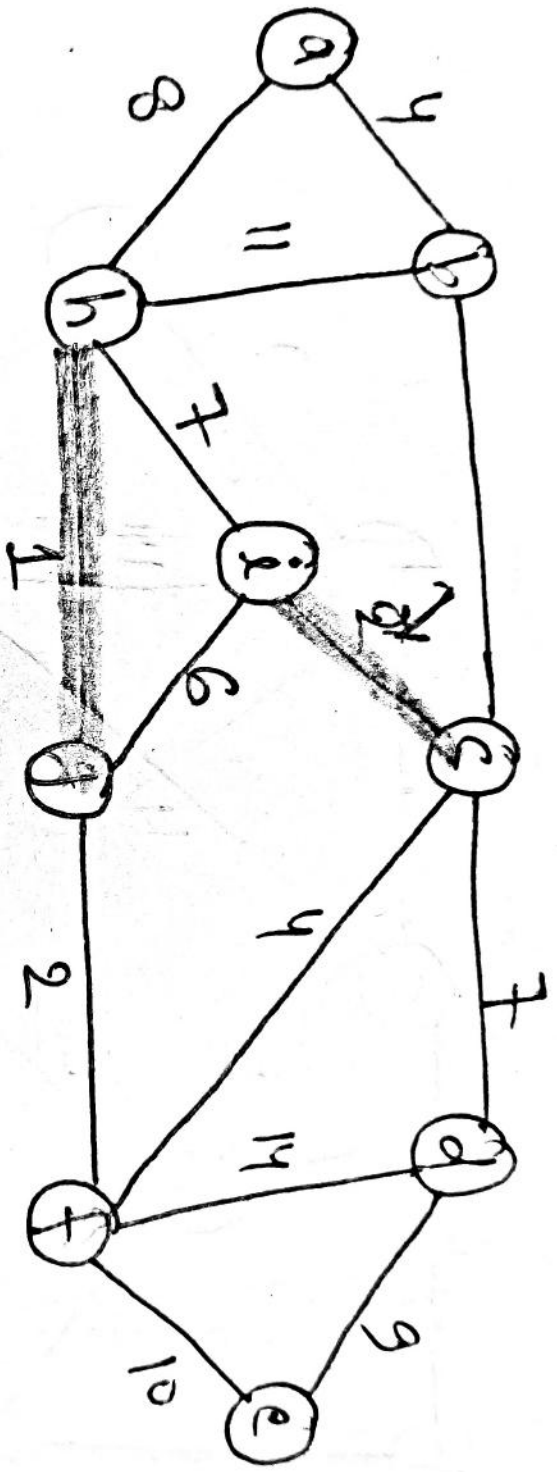


ay

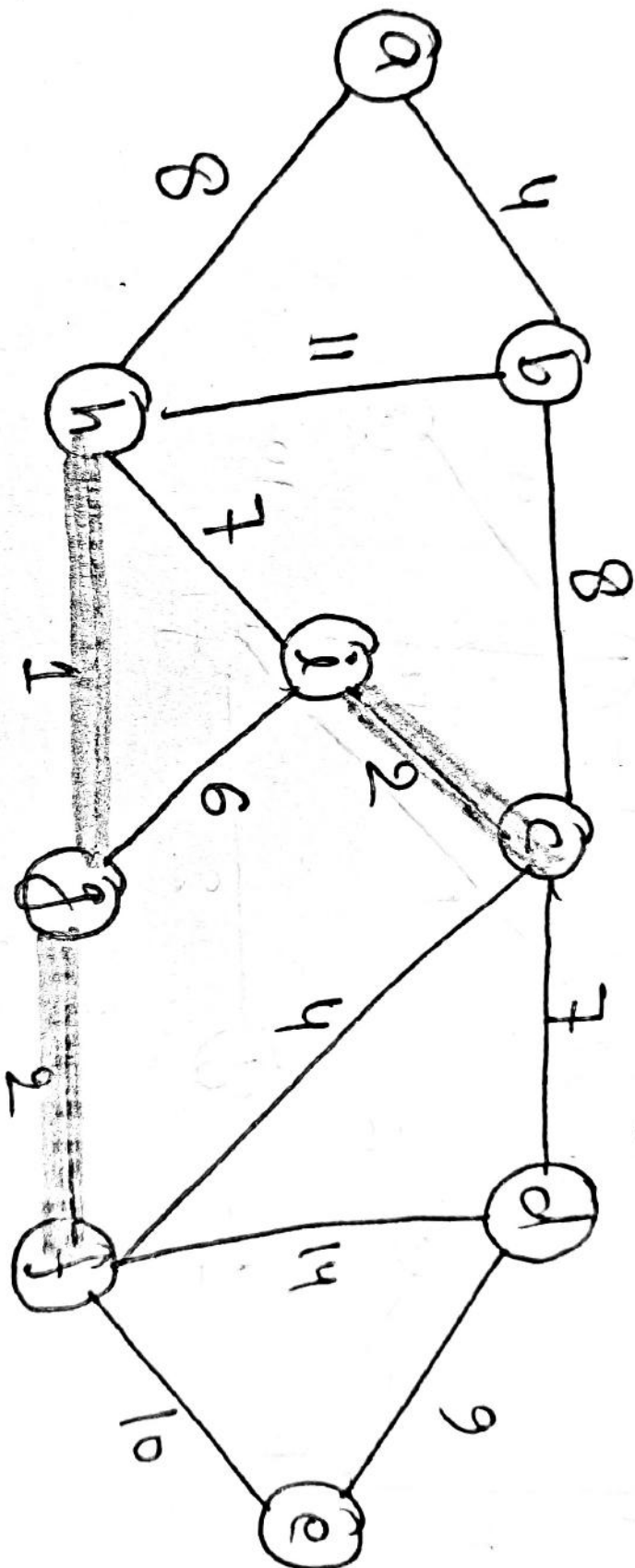


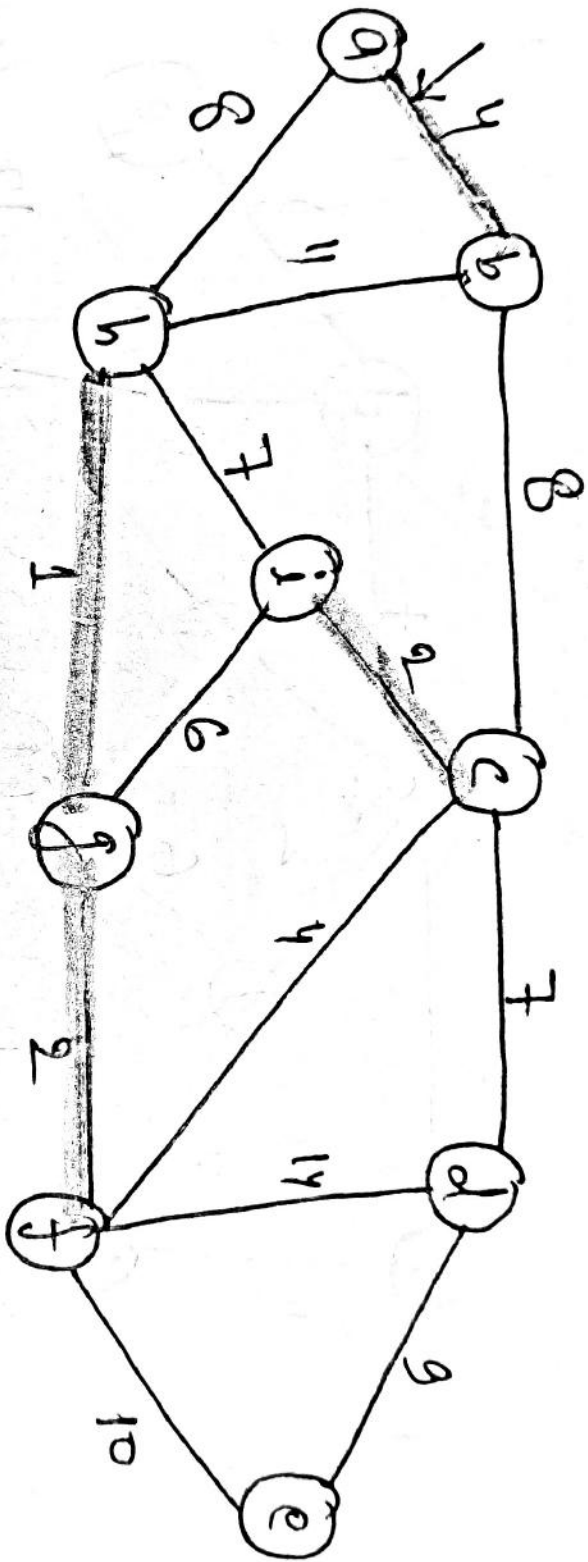
Pic minimum cost edge

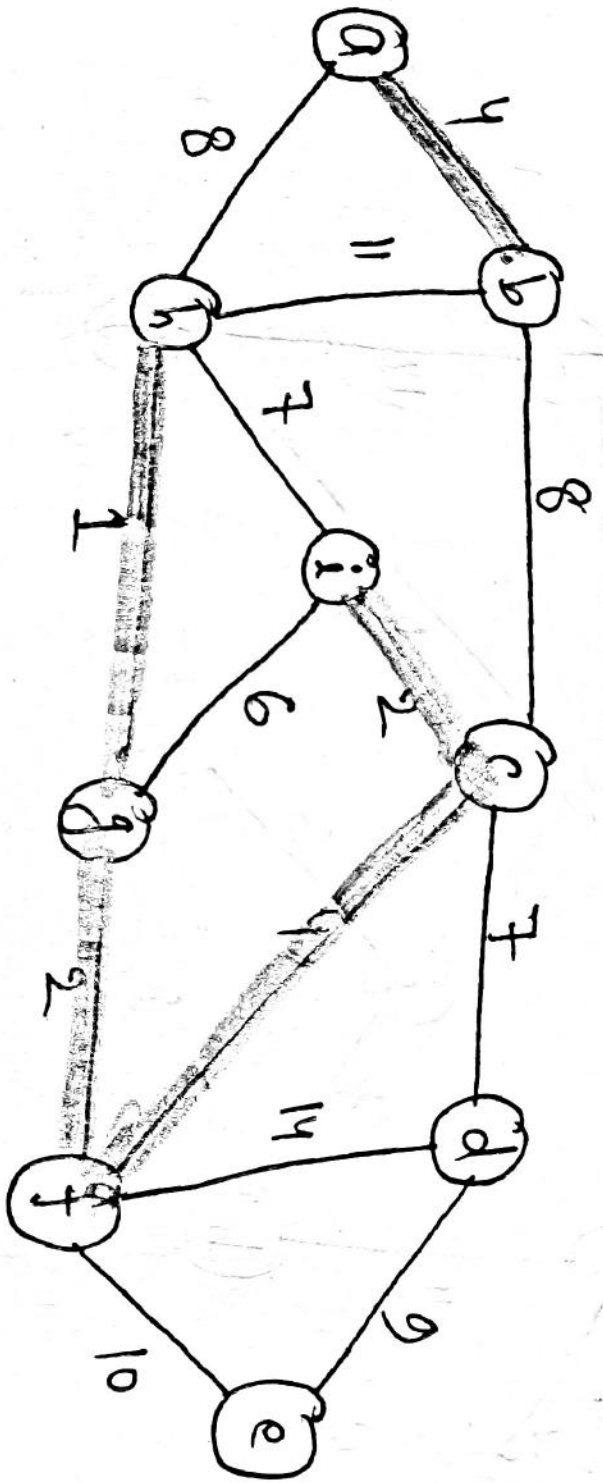
b7



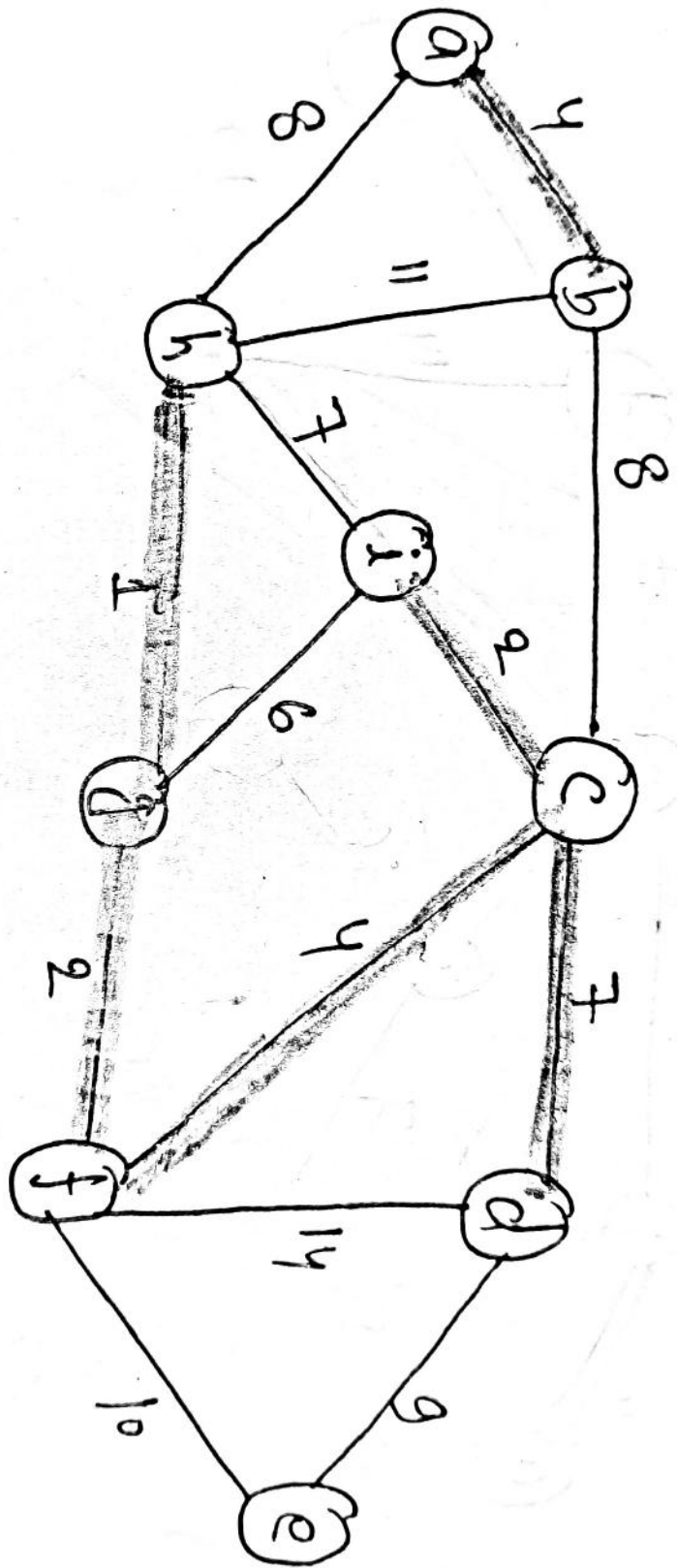
Q7



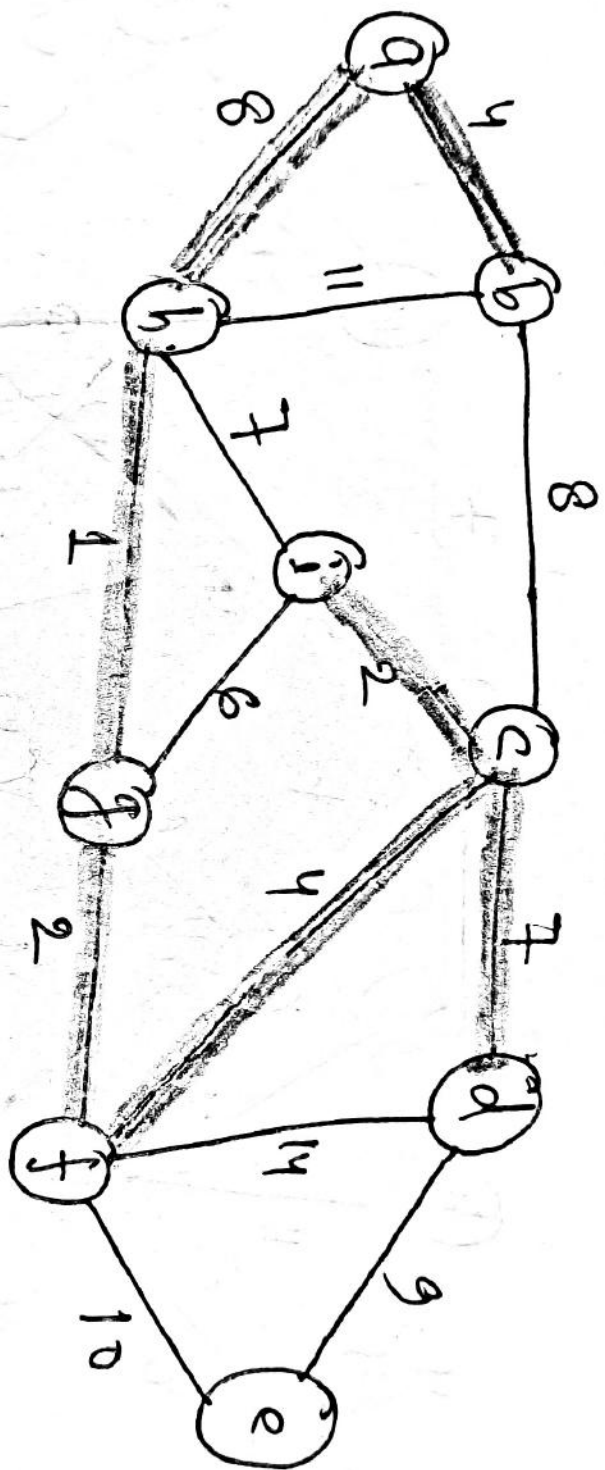


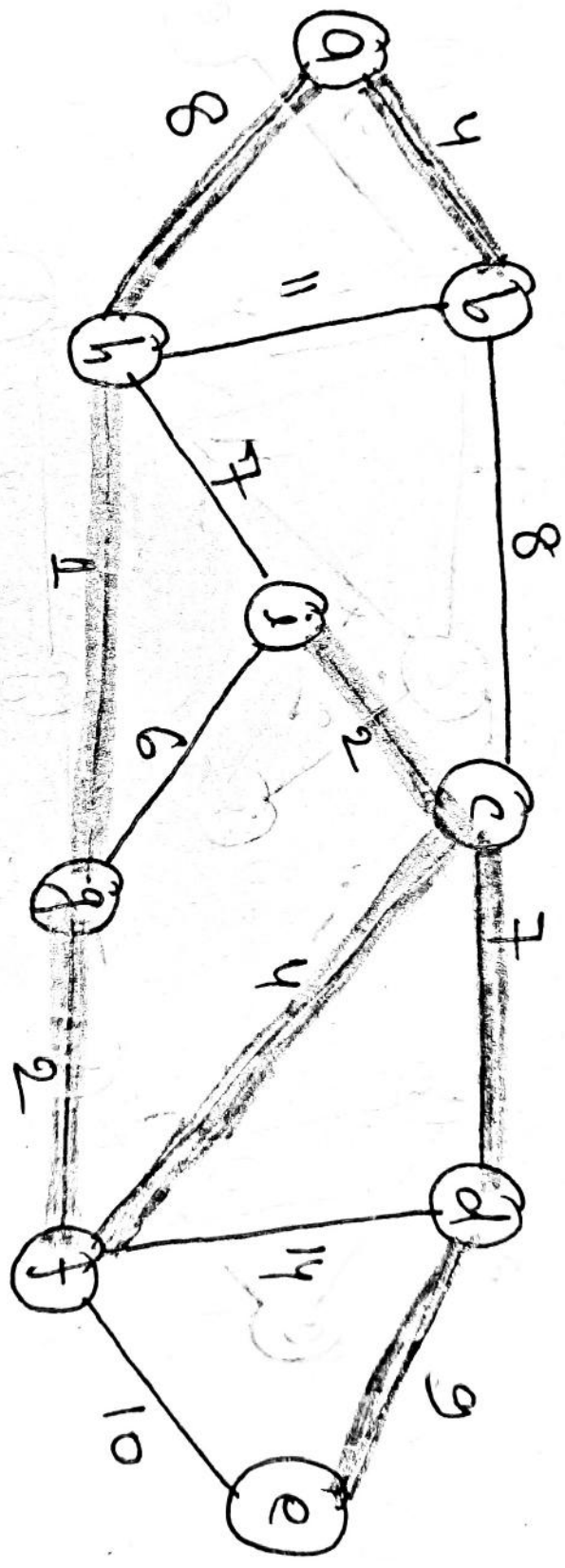


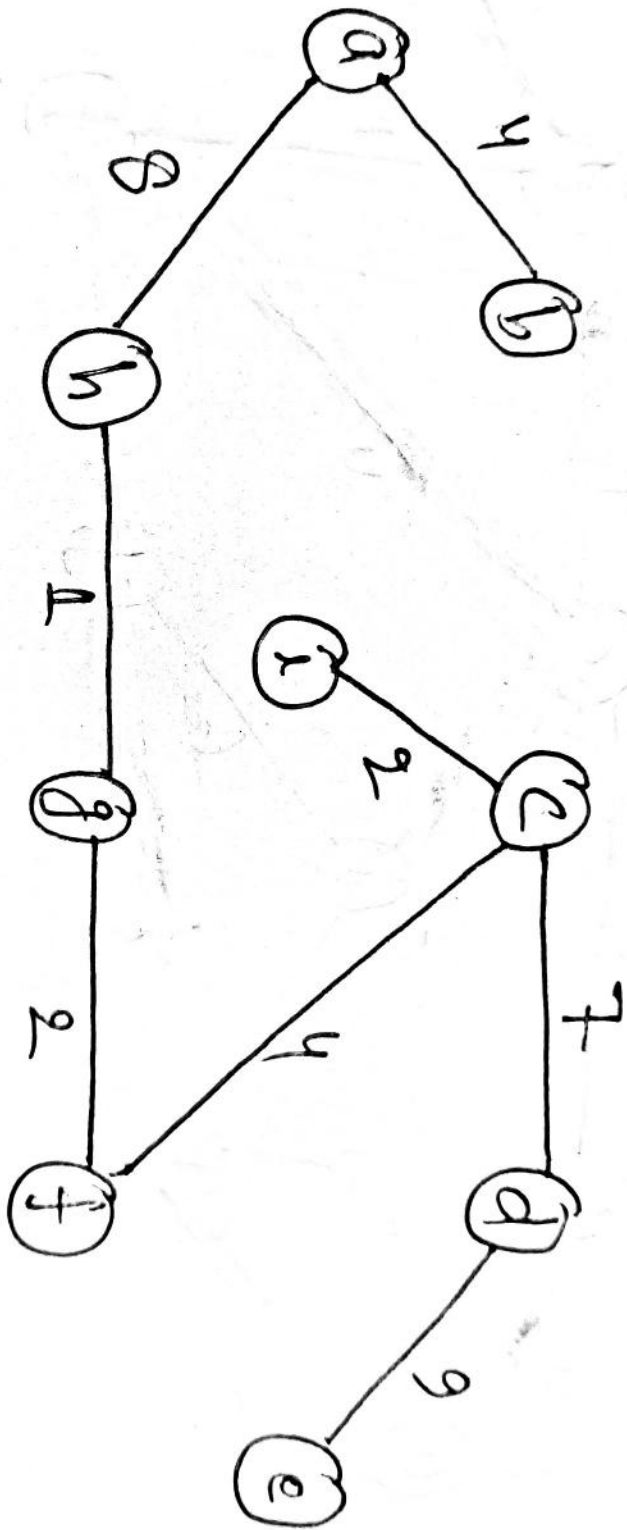
47



8







Minimum cost = 37.