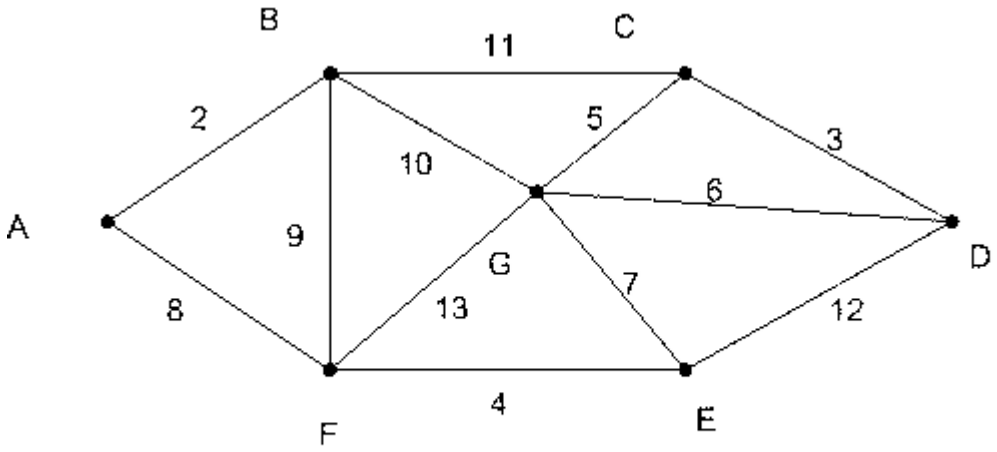
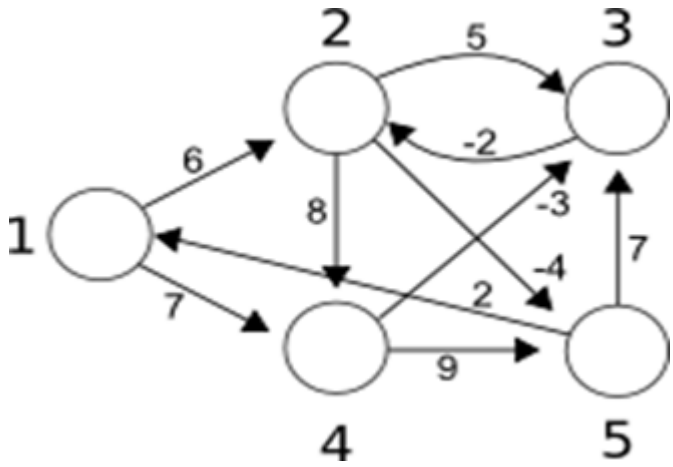
[5+5 points]

Use Kruskal's algorithm to find a minimum spanning tree for the weighted graph shown below, showing all steps. Then, use Prim's algorithm to do the same thing, using the same weighted graph, again showing all steps.



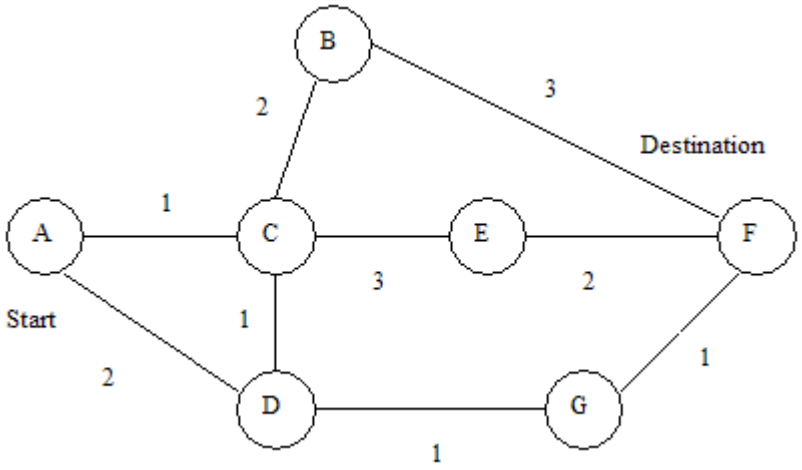
[6 points]

Use the Bellman-Ford algorithm to find the single-source shortest paths for the weighted graph shown below, showing all steps.



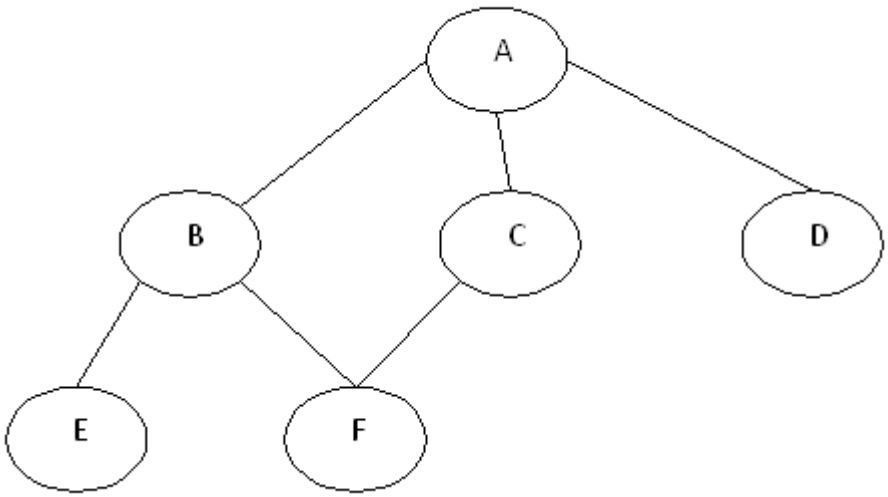
[6 points]

Use Dijkstra's algorithm to find the shortest path between the source and destination for the weighted graph shown below, showing all steps.



[4+4 points]

Starting from node A, find DFS and BFS for the graph shown below. Show all your steps.



[10 points]

Consider a modification of the rod-cutting problem in which, in addition to a price p_i for each rod, each cut incurs a fixed cost c. The revenue associated with a solution is now the sum of the prices of the pieces minus the cost of making the cuts.

Give a dynamic programming algorithm in pseudocode format to solve this modified problem.