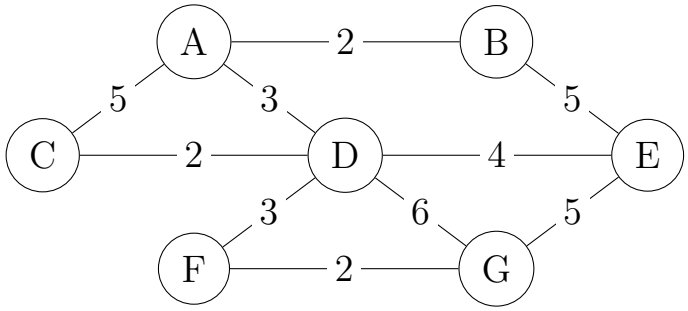
Shortest Path and Minimum Spanning Tree

Question Bank

NOTE: Remember that some graphs have many minimum spanning trees. So if your tree looks different to a solution you can check that the total of all edge weights on your tree is as small as the example tree.

1. For the following graph:

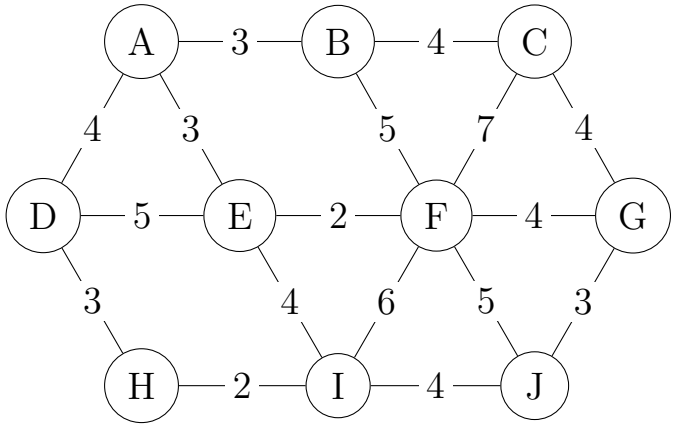


   a) Find the shortest path from C to G.

   b) Find the shortest path from F to B.

   c) Draw a minimum spanning tree.

2. For the following graph:

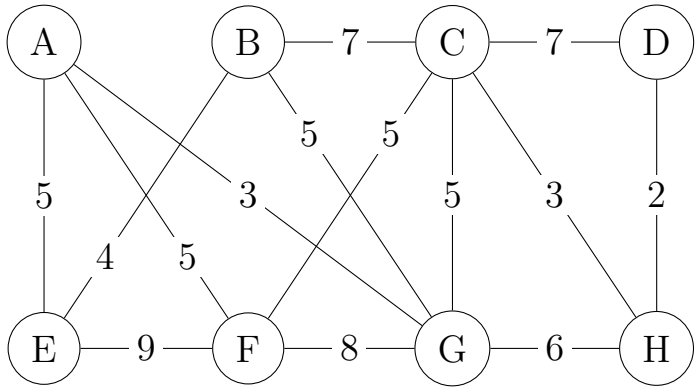


   a) Find the shortest path from C to D.

   b) Find the shortest path from H to B.

   c) Draw a minimum spanning tree.

3. For the following graph:

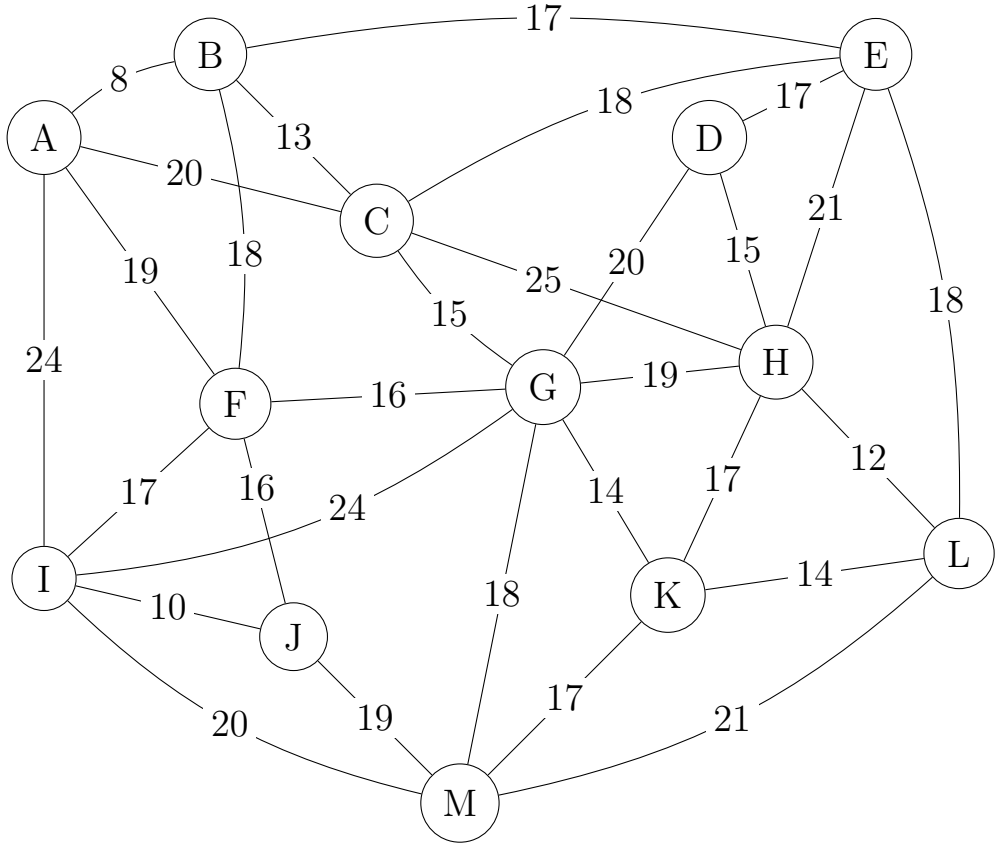


a) Find the shortest path from E to C.

b) Find the shortest path from D to E.

c) Draw a minimum spanning tree.

4. For the following graph:



a) Find the shortest path from A to K.

b) Find the shortest path from I to E.

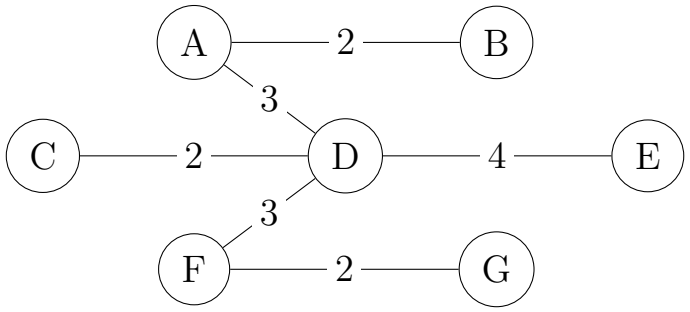
c) Draw a minimum spanning tree.

Answers

1. a) C → D → F → G, weight of 7

   b) F → D → A → B, weight of 8

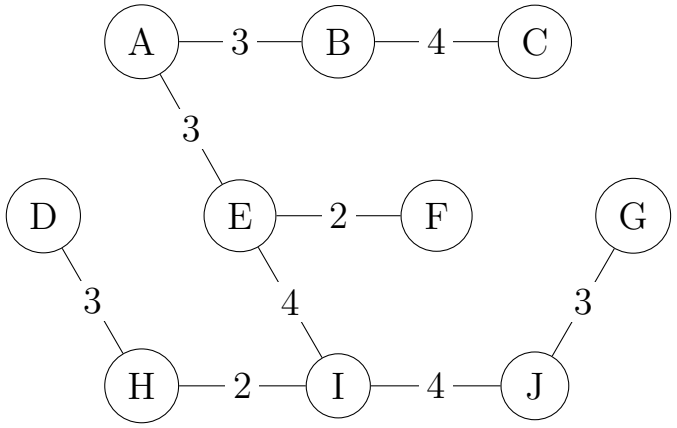
   c)



2. a) C → B → A → D, weight of 11

   b) H → D → A → B, weight of 10

   c)



3. a) E → A → G → C, weight of 13

   b) D → H → C → G → A → E, weight of 18

   c)