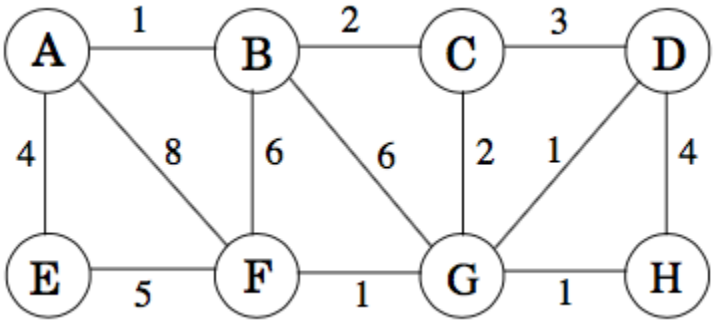
CSE 207
CT 1-SET A
Date: 07/12/2021
Time: 20 minutes

Name:_____ **ID:**_____

1. What is the cost of its minimum spanning tree?



2. The following statements may or may not be correct. In each case, either prove it (if it is correct) or give a counterexample (if it isn't correct). Always assume that the graph G = (V, E) is undirected. Do not assume that edge weights are distinct unless this is specifically stated.

   If graph G has more than |V | − 1 edges, and there is a unique heaviest edge, then this edge cannot be part of a minimum spanning tree.

3. Suppose you are given a weighted graph G = (V,E) with a distinguished vertex s and where all edge weights are positive and distinct. Is it possible for a tree of shortest paths from s and a minimum spanning tree in G to not share any edges? If so, give an example. If not, give a reason.