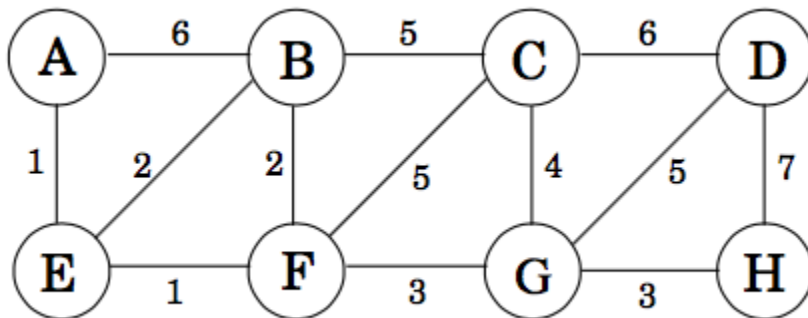


**CSE 207**  
**CT 1-SET B**  
**Date: 07/12/2021**  
**Time: 20 minutes**

**Name:** \_\_\_\_\_

**ID:** \_\_\_\_\_

1. How many minimum spanning trees does it have?



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.

(For any  $r > 0$ , define an  $r$ -path to be a path whose edges all have weight  $< r$ .) If  $G$  contains an  $r$ -path from node  $s$  to  $t$ , then every MST of  $G$  must also contain an  $r$ -path from node  $s$  to node  $t$ .

3. Show how to find the maximum spanning tree of a graph, that is, the spanning tree of largest total weight.