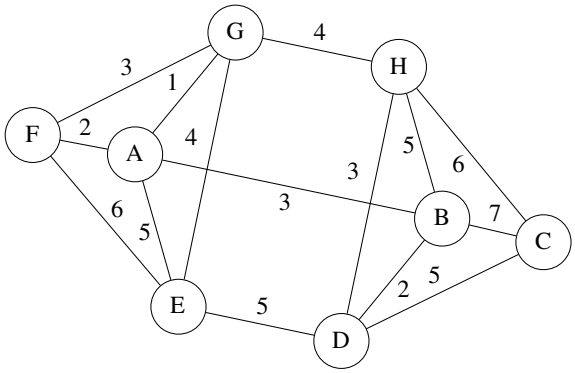
Today's topic: nearest common ancestors, union-find, minimum spanning trees; §§ 24.*
Next class: Review of recent topics.

1. List the members of your group below. Underline your name.

2. Trace the operation of Kruskal's minimum spanning tree algorithm on the following graph. Indicate each edge that is examined and whether it is accepted or rejected. Depict, after each edge acceptance, (1) the pairing heap used to organize unexamined edges, (2) the forest of accepted edges forming the partial minimum spanning tree, and (3) the forest of the union-find data structure in both tree and array form. Construct the initial pairing heap by inserting edges in lexicographic order of edge names, where an edge (u, v) is named uv if $u < v$ and vu otherwise. For the union-find data structure, use path compression and union by rank.



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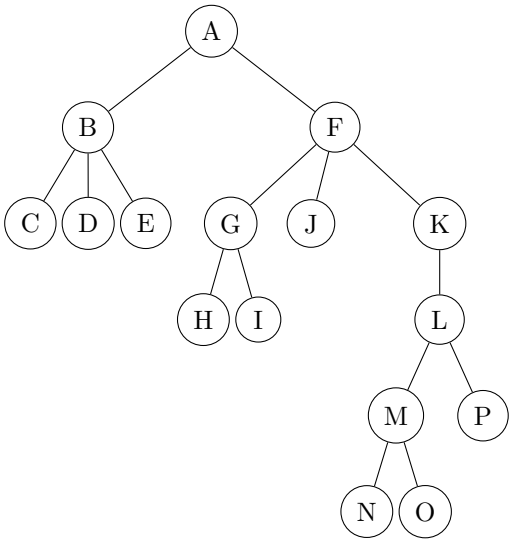
3. For the tree depicted below, list the nodes in

   (a) Preorder:

   (b) Postorder:

   (c) Level-order:



4. For the tree of Question 3, list the nearest common ancestors (NCAs) of:

   (a) H and M:

   (b) C and G:

   (c) F and P:

   (d) D and N:

5. Using the convention of Figure 24.9 in the textbook, depict the *common-anchor sets* when the NCA algorithm operating on the tree of Question 3 is about to return from a recursive call on node O.

6. Continuing with Question 5, Explain how the NCAs of pairs (I, O), (H, L), and (G, P) is computed.