

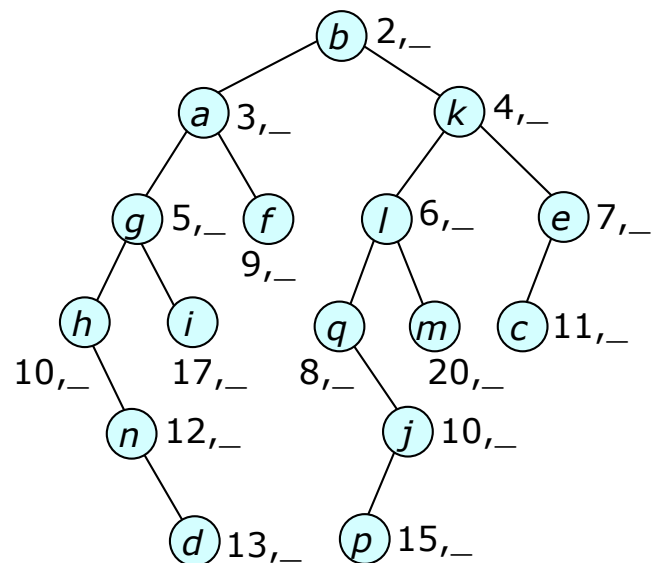
Review Questions 11

Your Name:

Please print out this form (two-sided, if you can) and write your answers *legibly* in the spaces provided. If you can't write legibly, type.

1. Explain how the round-robin algorithm is a special case of the general greedy method for minimum spanning tree.

2. Label the nodes in the binary heap shown at right with their "ranks", using the definition of ranks used for leftist heaps. (note: the figure does not show the "external nodes"). Is this heap leftist? If not, show how you can restructure it to make it leftist (keeping in mind that the keys must remain in "heap-order").



3. Suppose u is a node in a leftist heap and let $size(u)$ be the number of nodes in the subtree at u , including external nodes. Is it possible to have $size(left(u)) < size(right(u))$? Justify your answer.

Show that $size(u) > 2^{rank(u)}$ (hint, use induction on ranks, with $rank=1$ as the basis).