CS 206 Data Structures Spring 2015

Homework 4

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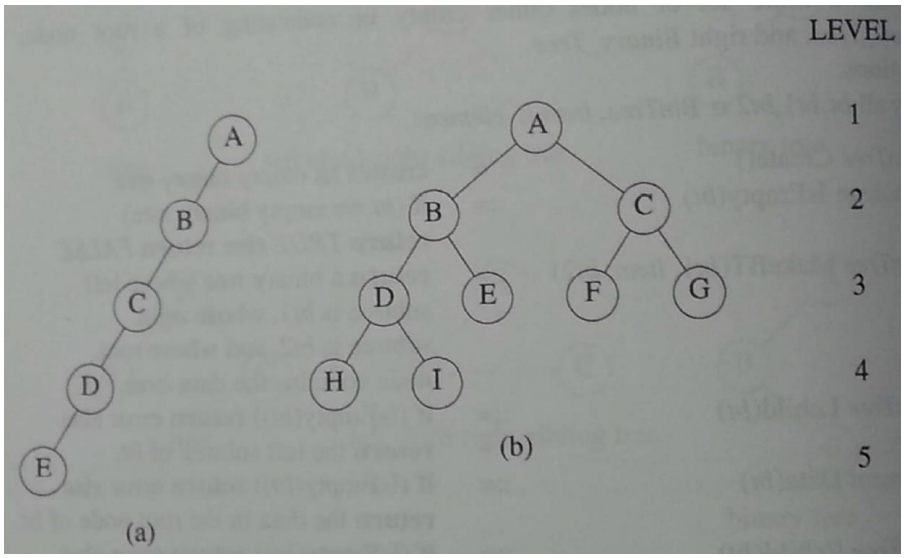
1. What is the maximum number of nodes in a k-ary tree of height h? Prove you answer.

2. Write out the preorder, inorder and postorder traversals of the following binary trees.



3. Write a nonrecursive version of the function `preorder()` and the function `postorder()` discussed in class.

4. A *max* (*min*) tree is a tree in which the key value in each node is no smaller (larger) that the key values in its children (if any). A *max heap* is a complete binary tree that is also a max tree. A *min heap* is a complete binary tree that is also a min tree.

   Suppose that we have the following key values: 7, 16, 49, 82, 5, 31, 6, 2, 44.

   (a) Write out the max heap after each value is inserted into the heap.

   (b) Write out the min heap after each value is inserted into the heap.