Chapter 5

1. For the binary tree of Figure 1, list the leaf nodes,the nonleaf nodes, and the level of each node.

2. Write out the inorder, preorder, and level-order traversals for the binary tree of Figure 2.

3. Do Exercise 2 for the binary tree of Figure 1.

4. 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 insert into the heap.

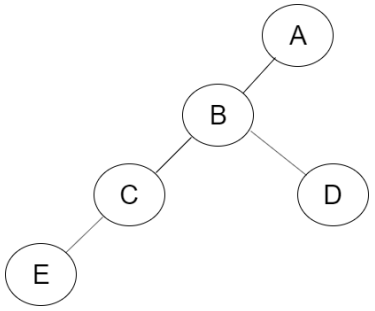
   (b) Write out the min heap after each value is insert into the heap.

5. Write a C function that searches for an arbitrary element in a max heap . What is the computing time of your function?

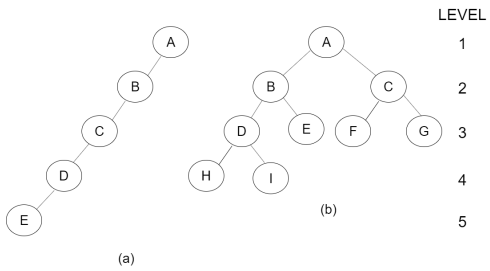
6. Define the inverse transformation of the one that creats the associated binary tree from a forest. Are these transformations unique?

7. Prove that the preorder traversal of a forest and the preorder traversal of its associated binary tree give the same result.

8. Prove that every binary tree is unique defined by its preorder and inorder sequences.



(a) Figure.1



(b) Figure.2