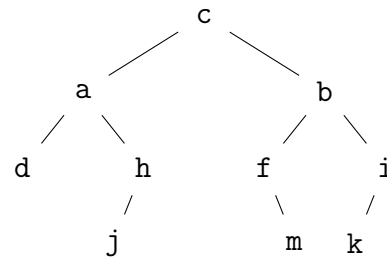Name:

Introduction to Programming in Python, I Semester, 2014–2015
Quiz 7, 12 November 2014

Answer both questions in the space provided. Use the reverse for rough work.
Don't forget to fill your name!

1. Consider the binary tree on the right.

(a) Draw another binary tree with the same preorder traversal as this one.

Preorder traversal is c a d h j b f m i k. *Many other trees have the same traversal — for instance, move **j** from left child to right child of **h**. Or just create a "linear" tree rooted at **c**, left child **a**, left child **d**, ..., left child **k**.*

(b) Draw another binary tree with the same postorder traversal as this one.

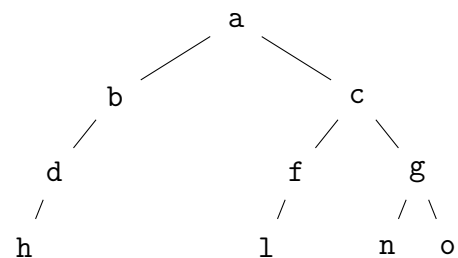*Postorder traversal is* d j h a m f k i b c. *Many other trees have the same traversal — for instance, move **m** from right child to left child of **f**. Or just create a "linear" tree rooted at **c**, left child **b**, left child **i**, ..., left child **d**.*

(5 marks)

2. Reconstruct the binary tree corresponding to the following infromation:

- *Inorder traversal:*   h d b a l f c n g o
- *Postorder traversal:*   h d b l f n o g c a

*From the postorder traversal, we know that **a** is the root. From the inorder traversal, we know that the left subtree of **a** has inorder traversal **h d b** and the right subtree has inorder traversal **l f c n g o**. The corresponding postorder traversals are **h d b** and **l f n o g** c, respectively. Proceeding recursively, we construct the tree on the right.*

(5 marks)