1. Please write an algorithm to determine whether two binary trees, T_1 and T_2, are identical. (20%)

2. Build and show the final min heap tree if the following values are added to the tree in sequence:

34, 61, 47, 8, 76, 53, 22, 15. (10%)

3. Read the following data in the given order, and show the corresponding trees.

11, 15, 27, 22, 6, 19, 31, 37, 8, 25, 2, 33, 16. (20%)

  (1) Binary search tree

  (2) AVL tree

4. Suppose there are n internal nodes of a binary tree. Let E and I denote the external path length and internal path length of a binary tree, respectively. How related E to I? and why? (10%)

5. How many different binary trees are there with n nodes? and why? (20%)

6. Please write an algorithm to invert a singly linked-list pointed by pointer p. (20%)