Homework 1

CS323

January 28, 2010

Problem 1

a) Draw the BST and the RBT obtained by inserting in that order the symbols of the word ”ALGORITHM”.

b) Spell out the words obtained after a pre order, in order and a post order traversal of the BST.

c) Draw how does the RBT look like after inserting ”S”. I.e., this will now contain ”ALGORITHMS”.

Problem 2

Prove by induction that

a) A binary tree of height $h$ has no more than $2^{h+1} - 1$ nodes (including leaves). State clearly the base case and the inductive step.