

Comp3403x2 – Quiz 4

Student Name:

1. a. For $v = 1; 2; 3; 4;$ and 5, draw all the binary trees with v nodes that satisfy the balance requirement of AVL trees.
b. Draw a binary tree of height 4 that can be an AVL tree and has the smallest number of nodes among all such trees.
2. Construct a 2-3 tree for the list C, O, M, P, U, T, I, N, G. Use the alphabetical order of the letters and insert them successively starting with the empty tree.
3. Consider the problem of searching for genes in DNA sequences using Horspool's algorithm. A DNA sequence consists of a text on the alphabet $\{A, C, G, T\}$ and the gene or gene segment is the pattern. (a.) Construct the shift table for the following gene segment of your chromosome 10: TCCTATTCTT