CSE 542 – Advanced Data Structures and Algorithms *Jon Turner*

Review Questions 23

Your Name:

Please print out this form (two-sided, if you can) and write your answers *legibly* in the spaces provided. If you can't write legibly, type.

1. Let p=*d,f,g,c,a,e,b* be a path (*d* comes first, *b* last), with costs 7, 3, 4, 6, 5, 3, 4. Draw a binary tree with root *c* that represents this path, labeling each node with its *cost* and its *mincost*. Now, draw a second version of the tree, labeling each node with its Δ*min* and Δ*cost* values.

2. Given a node *x* in a search tree with Δ*min* and Δ*cost* values, describe an algorithm to compute the *cost* and *mincost* for *x*. Describe an algorithm for increasing the cost of all nodes in a tree with root *r* by some value *D*.

3. Given a binary search tree where each node is labeled by its *cost* and *mincost* values, describe an algorithm to find the last (rightmost) node that has the minimum cost, among all nodes in the tree.