1) (10pts) ANL (Algorithm Analysis)

Determine the ***best case*** run time in terms *n* for each of the following functions/operations.

a) Finding the maximum value in an unsorted linked list of *n* elements O(n)

b) Inserting an item into a binary search tree of *n* elements O(1)

c) Inserting an item into a binary heap of *n* elements O(1)

d) Sorting an array of *n* elements using Merge Sort O(nlgn)

e) Deleting an element from a circular linked list of *n* elements O(1)

Grading: 1 pt each, must be correct to earn the point.

Determine the ***worst case*** run time in terms of *n* for each of the following functions/operations.

f) Deleting an item from an AVL tree of *n* elements O(lg n)

g) Deleting the minimum item from a binary min heap of *n* elements O(lg n)

h) Inserting an item into a binary search tree of *n* elements O(n)

i) Sorting an array of *n* elements using Heap Sort O(nlgn)

j) Deleting an element from a doubly linked list of *n* elements O(n)

Grading: 1 pt each, must be correct to earn the point.