

Name: \_\_\_\_\_

VT ID # \_\_\_\_\_

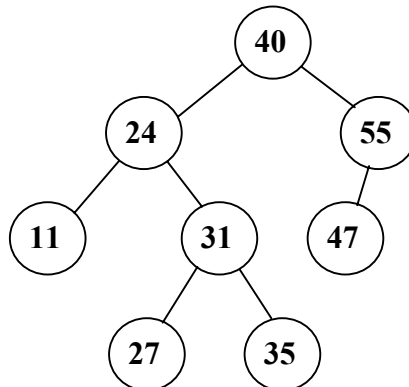
This homework assignment will be **handwritten and turned in in-class, at the start of class (2:00pm) on Thursday, October 28, 2004**. Write your answers on this document in the space provided for each question. Be sure to write your name on each page and keep the pages stapled together. No late assignments will be accepted.

For Problem 1, consider the following C++ function:

```
void mysterySort(T data[], int n)
{
    for (i = 0; i < n-1; i++)
    {
        for (j = n-1; j > i; --j)
        {
            if (data[j] < data[j-1])
            {
                T tmp = data[j];
                data[j] = data[j-1];
                data[j-1] = tmp;
            }
        }
    }
}
```

For Problems 2 – 6, consider Tree T shown below:

Tree T



1. [15 points] Fill-in the table below to indicate in Big- $\Theta$  notation the number of comparisons and the number of moves that `mysterySort` will make in the best, worst, and average case. **In order to receive full credit, in the space after the table, you must fully justify your answer for each cell in the table.**

	Best-case	Worst-Case	Average-Case
Number of Comparisons			
Number of Moves			



4. [5 points] Starting with Tree T **as shown on the first page**, draw the AVL tree that would result from inserting 5, 18, and 3 (in that order) into Tree T.

5. [5 points] Starting with Tree T **as shown on the first page**, draw the AVL tree that would result from **deleting** 27 and 35 (in that order) from Tree T.



