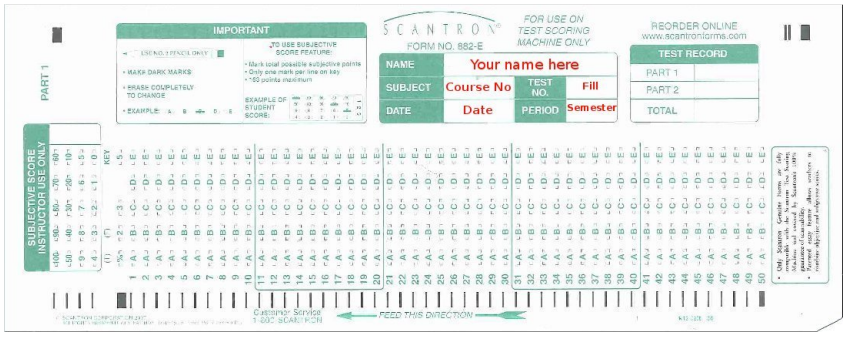
CSC 311-01 QUIZ 6 Spring 2015

5 min.

This is a CLOSED textbook quiz.

USE SCANTRON FORM NO. 882-E LIKE THIS:



Select <u>one</u> answer to each question.

1. Imagine a tree that represents an arithmetic expression that is composed of constants and binary operators: $+, *$, and $/$. For instance, the expression may look like this: $x * y + x/y$. What tree traversal strategy is best used in order to print the expression in question when given that tree as an argument?

   (A) in-order

   (B) pre-order

   (C) post-order

   (D) level-by-level

   (E) none of the above.

2. Which element of a binary search tree is always easy to delete?

(A) the left child of the right child of the root

(B) the smallest element in the tree

(C) the second largest element in the tree.

(D) the root

(E) none of the above.

3. What is the formula (given in class) for the approximate *external path length* in a shortest binary search tree with n nodes, where $n > 0$? (It was referred to as the *best case*.)

(A) $1.4n \lg n - 2.8n$

(B) $\frac{n(n+3)}{2}$

(C) $\frac{n+1}{2}$

(D) $n \lg n$

(E) none of the above.

4. What is the formula (given in class) for the approximate *internal path length* in an average binary search tree with n nodes, where $n > 0$? (It was referred to as the *average case*.)

(A) $1.4n \lg n - 2.8n$

(B) $\frac{n(n+3)}{2}$

(C) $\frac{n+1}{2}$

(D) $n \lg n$

(E) none of the above.

5. What is the formula (given in class) for the approximate average number c of comparisons while unsuccessfully searching for a random element in a tallest binary search tree with n nodes, where $n > 0$? (It was referred to as the *worst case*.)

(A) $1.4n \lg n - 2.8n$

(B) $\frac{n(n+3)}{2}$

(C) $\frac{n+1}{2}$

(D) $n \lg n$

(E) none of the above.