

ICS 353–Design and Analysis of Algorithms, Winter 2008**Quiz: 1****Section: 1****Time: 10 minutes**

Name:

ID#:

Question 1: [4 marks] Complete the following statements.

1. The height of the shortest binary search tree of size n is
2. Let $A[1..100]$ be any array, and let $x = A[25]$. The exact number of element comparisons performed by `BINARYSEARCH`(A, x) is

Question 2: [6 marks] Let $A = [1, 2, 3, 4, 5, 6, \dots, 13]$.

1. Draw the decision tree used by the algorithm `BINARYSEARCH` on the array A .
2. What is the *minimum unsuccessful search time* performed by the algorithm on A ?
3. Give an example of an element $x \notin A$ on which the algorithm attains its minimum unsuccessful search time.