

Spring 2009 CSE310 Midterm Examination II (in class)

Instructions:

- There are five questions in this paper. Please use the space provided (below the questions) to write the answers.
- Budget your time to answer various questions and avoid spending too much time on a particular question.
- This is a **closed book** examination. You may not consult your books/notes.

NAME	
ASUID	
Question	Score
Q1	
Q2	
Q3	
Q4	
Q5	
Total	

P1. (20 points: 10+10)

(10 pts) Describe chaining in hashing.

(10 pts) Describe linear probing in hashing.

P2. (20 points: 5+5+5+5)

The following four questions deal with binary search trees.

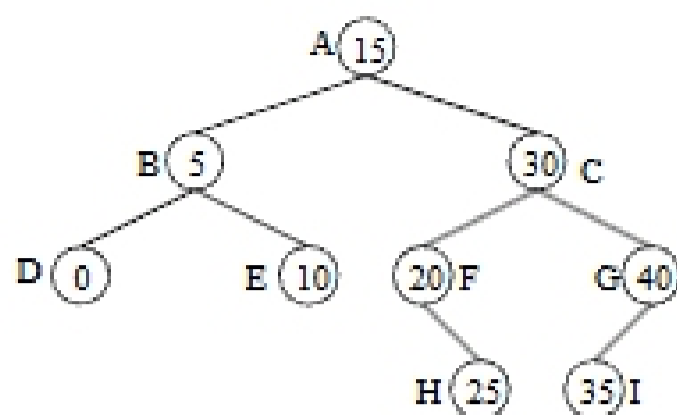


Figure 1: A binary search tree.

(5 pts) For each of the following sequences, write **YES** if there exists a binary search tree T and an integer k such that the search for k will visit exactly the given sequence of numbers; write **NO** otherwise. **Please note that this problem has nothing to do with the tree in Figure 1.**

- (A) 90, 80, 70, 120
- (B) 80, 90, 50, 85
- (C) 360, 100, 300, 200
- (D) 100, 200, 400, 150
- (E) 100, 200, 150, 550

(5 pts) Show the sequence obtained by post-order tree walk of the tree in Figure 1.

(5 pts) Show the resulting binary search tree obtained by inserting the number 4 into the binary search tree in Figure 1.

(5 pts) Show the resulting binary search tree obtained by deleting the number 20 from the binary search tree in Figure 1.