Problem 1. Consider the binary search tree (BST) below:

![Binary Search Tree](image)

Show the sequence of nodes visited to find the predecessor of 33.

Problem 2. Consider the binary search tree (BST) below:

![Binary Search Tree](image)

Show the sequence of nodes visited to find the successor of 33.

Problem 3 (Textbook Exercise 12.2-1). Which of the following sequences could not be the sequence of nodes visited in a predecessor query?

A. 2, 252, 401, 398, 330, 344, 397, 363.
B. 924, 220, 911, 244, 898, 258, 362, 363.
D. 2, 399, 387, 219, 266, 382, 381, 278, 363.

Problem 4. Let $T$ be a balanced BST storing a set of $n$ integers. Give an algorithm to find the smallest integer in $O(\log n)$ time.

Problem 5. Let $T$ be a balanced BST storing a set of $n$ integers. Give an algorithm to report all these integers in ascending order in $O(n)$ time.

Problem 6. Let $T$ be a BST storing a set $S$ of integers. Let $u$ be a node in $T$ with key $k$. Suppose that $u$ is an internal node with a right child. Prove that the node whose key succeeds $k$ in $S$ must either be a leaf, or have no left child.