## Binary Search \& Binary Trees

1. Starting from an empty binary search tree, create the binary search tree with the letters:

P, R, I, N, C, E, T, O, N
a. What keys are examined when we search for $E$ ?
b. What keys are examined when we search for Q ?
2. Which of the following is not a valid binary search tree? Of the valid ones, which is fastest to search?

3. Suppose we have integer values between 1 and 1000 in a BST and search for 363 . Which of the following cannot be the sequence of keys examined?
a. 2, 252, 401, $398,330,363$
b. $399,387,219,266,382,381,278,363$
c. $3,923,220,911,244,898,258,362,363$
d. $4,924,278,347,621,299,392,358,363$
e. $5,925,202,910,245,363$

