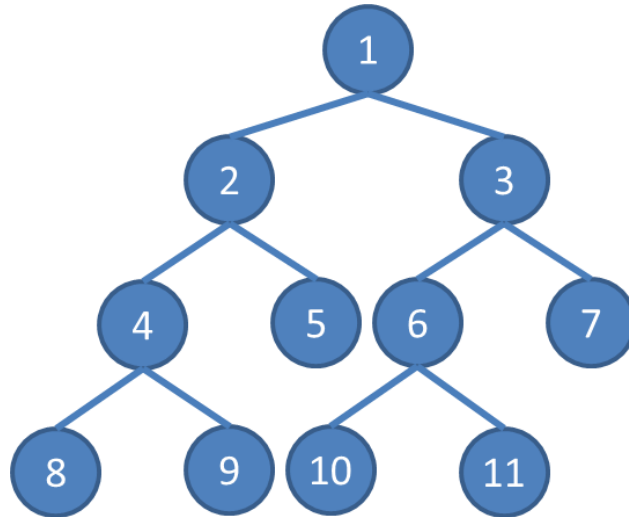# Practice Problems 4 Solutions

Be sure to provide an answer for each question. You may work with other students, as well as use your notes, the book, and the internet. Do make sure you understand how to solve the problems and answer the questions, as similar ones may appear on the exams.



1. What is the height of this tree?

   **3**

2. What is the depth of node 5?

   **2**

3. What are the internal nodes of this tree?

   **1, 2, 3, 4, 6**

4. What are the leaf nodes of this tree?

   **8, 9, 5, 10, 11, 7**

5. What are the descendants of node 3?

   **6, 7, 10, 11**

6. What are the ancestors of node 9?

   **4, 2, 1**

7. Is this tree full, complete, and/or perfect?

   **Only Full**

8. Assuming a left child preference, list the output of the following traversals of the tree:

Preorder: **1, 2, 4, 8, 9, 5, 3, 6, 10, 11, 7**

Postorder: **8, 9, 4, 5, 2, 10, 11, 6, 7, 3, 1**

Inorder: **8, 4, 9, 2, 5, 1, 10, 6, 11, 3, 7**

Level order: **1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11**