Esporas Javibe M. 202012159

CPEN 65

Exercises on Trees

1. Name the three properties of a tree.

* Edges, Nodes, and Recursive

1. Is a tree a forest?

* Yes

1. What do you call the special designated node in a tree?

* Root

1. What is the minimum number of nodes in a tree?

* One

1. Can a tree have no subtrees at all?

* Yes

1. Children of node 16.

* 13, 6, & 60

1. Parent of node 1.

* 7

1. Siblings of 23.

* None

1. Ancestors of 9.

* 22, 7,12, & 4

1. Descendants of 16.

* 13, 23, 6, 60, & 21

1. Leaves.

* 23, 6, 21, 20, 9, & 1

1. Non-leaves.

* 22, 16, 13, 60, 7, 12, & 4

1. Depth of node 4.

* 3

1. Degree of the tree.

* 3

1. Height of the tree.

* 5

1. Weight of the tree.

* 10

1. Is the tree a binary tree?

* No.

1. Removing 6, is the tree a full binary tree?

* Yes

1. Removing 6, is the tree a complete binary tree?

* No

1. Is a full binary tree complete?

* Yes, as full binary trees are complete binary trees.

1. Is a complete binary tree full?

* No, not all complete binary trees are full binary trees.

1. How many leaves does a complete n-ary tree of height h have?

* Equal to n^h

1. What is the height of a complete n-ary tree with m leaves?



1. What is the number of internal nodes of a complete n-ary tree of height h?



1. What is the total number of nodes a complete n-ary tree of height h have?