JOSHUA D. ATENCIA

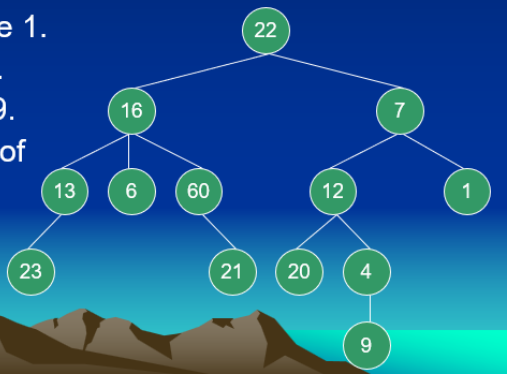
BS CPE 2-1

1. Name the three properties of a tree.
2. Is a tree a forest?
3. What do you call the special designated node in a tree?
4. What is the minimum number of nodes in a tree?
5. Can a tree have no subtrees at all?

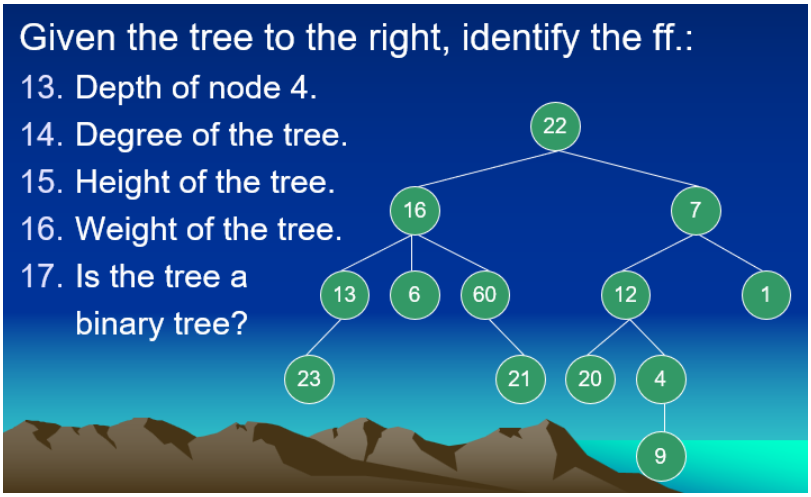
1. Connected, acyclic, and undirected graph.
2. Yes.
3. Root node.
4. 1
5. Yes.

Given the tree to the right, identify the ff.:

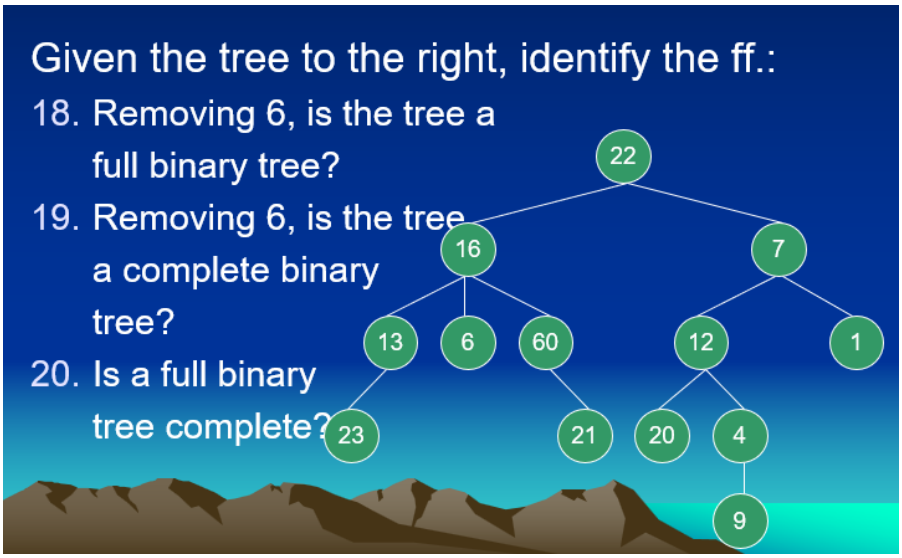
6. Children of node 16.
7. Parent of node 1.
8. Siblings of 23.
9. Ancestors of 9.
10. Descendants of 16.
11. Leaves.
12. Non-leaves.




6. Children of node 16 are nodes 13, 6, and 60.
7. Node 7.
8. No siblings.
9. Node 22, 7, 12, and 4.
10. Nodes 13, 23, 6, 60, and 21.
11. Nodes 23, 6, 21, 20, 9, and 1.
12. Nodes 22, 13, 16, 60, 12, 4, and 7.




13. Depth 3
14. 3
15. 4
16. 6
17. Yes.




18. No.
19. No.
20. No.

Given the tree to the right, identify the ff.:

21. Is a complete binary tree full?
22. How many leaves does a complete *n*-ary tree of height *h* have?
23. What is the height of a complete *n*-ary tree with *m* leaves?
24. What is the number of internal nodes of a complete *n*-ary tree of height *h*?
25. What is the total number of nodes a complete *n*-ary tree of height *h* have?

21. Yes.
22. $n^h$
23. $log_n m$
24. $\frac{n^h-1}{n-1}$
25. $2^h - 1$