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BSCPE 2-1

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SHORT QUIZ

1. Name the three properties of a tree
   a. **Rooted**
   b. **Free**
   c. **Acyclic**

2. Is a tree forest?
   - **Yes**

3. What do you call the special designated node in a tree?
   - **Root**

4. What is the minimum number of nodes in a tree?
   - **One**

5. Can a tree have no subtrees at all?
   - **Yes**

6. Children of node 16
   - **13, 6, 60**

7. Parent of node 1
   - **7**

8. Sibling of 23
   - **None**

9. Ancestors of 9
   - **4, 12, 7, 22**

10. Descendants of 16
    - **13, 6, 60, 23, 21**

11. Leaves
    - **23, 21, 20, 9, 1**

12. Non- Leaves
    - **13, 16, 60, 12, 4, 7, 22**

13. Depth of node 4
    - **Depth: 3**

14. Degree of the tree
    - **Degree: 3**

15. Height of the tree
    - **Height: 4**

16. Weight of the tree
    - **Weight: 6**

17. Is the tree a binary tree?
    - **No**

18. Removing 6, is the tree a full binary tree?
    - **No**

19. Removing 6, is the tree a complete binary tree?
    - **No**

20. Is a full binary tree complete?
    - **No**

21. Is a complete binary tree full?
    - **Yes**

22. How many leaves does a complete n-ary tree of height h have?
    - $\mathbf{n^h}$

23. What is the height of a complete n -ary tree with m leaves?
    - $\mathbf{\log_n m}$

24. What is the number of internal nodes of complete n-ary tree of height h?
    - $\frac{n^h-1}{n-1}$

25. What is the total number of nodes of a complete n-ary tree of height h have?
    - $\mathbf{n^h-1}$