

# 12 Lecture - CS301

## Important Mcqs

1. **What is the height of a binary tree with only one node?**

- a) 0
- b) 1
- c) 2
- d) Undefined

**Answer: a) 0**

2. **Which traversal method visits the nodes in the order left subtree, root, right subtree?**

- a) Pre-order traversal
- b) In-order traversal
- c) Post-order traversal
- d) Level-order traversal

**Answer: b) In-order traversal**

3. **Which traversal method visits the nodes in the order root, left subtree, right subtree?**

- a) Pre-order traversal
- b) In-order traversal
- c) Post-order traversal
- d) Level-order traversal

**Answer: a) Pre-order traversal**

4. **What is the time complexity of searching for a node in a Binary Tree?**

- a)  $O(1)$
- b)  $O(\log n)$
- c)  $O(n)$
- d) It depends on the implementation

**Answer: c)  $O(n)$**

5. **What is the maximum number of nodes at level k in a Binary Tree?**

- a)  $2^k$
- b)  $k^2$
- c)  $k+1$
- d) None of the above

**Answer: a)  $2^k$**

6. **Which of the following is a way to delete a node in a Binary Tree?**

- a) Deleting the node and its children
- b) Replacing the node with its left child

- c) Replacing the node with its right child
- d) All of the above

Answer: d) All of the above

7. **What is the time complexity of finding the height of a Binary Tree?**

- a)  $O(1)$
- b)  $O(\log n)$
- c)  $O(n)$
- d) It depends on the implementation

Answer: c)  $O(n)$

8. **What is the maximum number of nodes in a Binary Tree with height  $h$ ?**

- a)  $2^h$
- b)  $h^2$
- c)  $h+1$
- d) None of the above

Answer: a)  $2^h - 1$

9. **Which of the following is a way to insert a node in a Binary Tree?**

- a) As the left child of a leaf node
- b) As the right child of a leaf node
- c) As the left child of a non-leaf node
- d) All of the above

Answer: d) All of the above

10. **Which of the following is an advantage of using a Binary Tree over a linked list?**

- a) Binary Tree can be searched faster than a linked list
- b) Binary Tree can be sorted faster than a linked list
- c) Binary Tree can store data in a hierarchical structure
- d) All of the above

Answer: d) All of the above