

24 Lecture - CS301

Important Mcqs

- 1. What is the time complexity of deleting a node in an AVL tree?**
 - a) $O(n)$
 - b) $O(\log n)$
 - c) $O(h)$
 - d) $O(h \log n)$**Answer: c) $O(h)$**
- 2. Which case is checked for rebalancing the AVL tree after a node is deleted?**
 - a) Left-Left
 - b) Left-Right
 - c) Right-Right
 - d) Right-Left**Answer: d) Right-Left**
- 3. In an AVL tree, what is the maximum number of rotations needed to rebalance the tree after deleting a node?**
 - a) 1
 - b) 2
 - c) 3
 - d) 4**Answer: b) 2**
- 4. Which of the following statements is true for the AVL tree?**
 - a) AVL tree is a binary search tree
 - b) AVL tree is a self-balancing binary search tree
 - c) AVL tree is not a binary search tree
 - d) AVL tree is a balanced binary search tree**Answer: b) AVL tree is a self-balancing binary search tree**
- 5. What is the height of an AVL tree after deleting a node?**
 - a) Remains the same
 - b) Decreases by 1
 - c) Increases by 1
 - d) Cannot be determined**Answer: a) Remains the same**
- 6. Which of the following rotations is performed when deleting a node in the Right-Right case?**
 - a) Single left rotation
 - b) Single right rotation
 - c) Double left rotation
 - d) Double right rotation**Answer: b) Single right rotation**

7. Which of the following rotations is performed when deleting a node in the Left-Right case?

- a) Single left rotation
- b) Single right rotation
- c) Double left rotation
- d) Double right rotation

Answer: d) Double right rotation

8. Which of the following is a disadvantage of using AVL trees?

- a) Faster insertion and deletion operations
- b) Slow search operation
- c) More memory space required
- d) Cannot be used to implement balanced search trees

Answer: c) More memory space required

9. Which of the following is an advantage of using AVL trees?

- a) Lower time complexity for all operations
- b) Smaller tree height compared to other self-balancing trees
- c) Can handle unbalanced trees efficiently
- d) No need for tree balancing operations

Answer: b) Smaller tree height compared to other self-balancing trees

10. In which of the following cases is no rotation needed when deleting a node in an AVL tree?

- a) Left-Left case
- b) Left-Right case
- c) Right-Right case
- d) Right-Left case

Answer: c) Right-Right case