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