27 Lecture - CS301

Important Mcqs

1. **Which of the following statements is true about a binary tree?**
   A. Each node has exactly two children
   B. Each node has at most two children
   C. Each node has at least two children
   D. Each node has exactly one child

Answer: B

2. **In a binary tree, a node is said to be a leaf node if:**
   A. It has no children
   B. It has exactly one child
   C. It has at least one child
   D. It has two children

Answer: A

3. **A binary tree is said to be a complete binary tree if:**
   A. All the nodes in the tree have the same value
   B. Each node has at most two children
   C. Each level of the tree is completely filled
   D. The tree is balanced

Answer: C

4. **Which of the following traversal methods visits the left subtree, then the root, and finally the right subtree?**
   A. Preorder
   B. Inorder
   C. Postorder
   D. Level order

Answer: B

5. **A binary tree is said to be balanced if:**
   A. All the nodes have the same value
   B. Each node has at most two children
   C. The height of the left and right subtrees of any node differ by at most 1
   D. The tree is complete

Answer: C

6. **In a binary tree, the maximum number of nodes at level k is:**
   A. 2^k

B. k^2
C. 2k
D. 2^(k-1)

Answer: A

7. **The number of edges in a full binary tree with n nodes is:**
   A. n-1
   B. n
   C. 2n-1
   D. 2n

Answer: C

8. **Which of the following statements is true about a binary search tree?**
   A. Each node has at most two children
   B. The left subtree of a node contains only nodes with values less than the node's value
   C. The right subtree of a node contains only nodes with values greater than the node's value
   D. All of the above

Answer: D

9. **A binary tree in which every non-leaf node has non-empty left and right subtrees is called a:**
   A. Full binary tree
   B. Complete binary tree
   C. Balanced binary tree
   D. None of the above

Answer: A

10. **In a binary tree, the height is defined as:**
    A. The number of nodes in the tree
    B. The number of edges from the root to the farthest leaf node
    C. The number of levels in the tree
    D. The number of subtrees in the tree

Answer: B