29 Lecture - CS301

Important Mcqs

- 1. A binary tree is said to be complete if:
 - a) All nodes have two children
 - b) All levels are completely filled except possibly the last level
 - c) All nodes have at most two children
 - d) None of the above

Answer: b) All levels are completely filled except possibly the last level

- 2. What is the maximum number of nodes a complete binary tree of height h can have?
 - a) 2^h+1
 - b) 2^h-1
 - c) h^2
 - d) None of the above

Answer: b) 2^h-1

- 3. What is the minimum number of nodes a complete binary tree of height h can have?
 - a) 2^(h-1)
 - b) 2^(h-1)-1
 - c) h^2-1
 - d) None of the above

Answer: a) 2^(h-1)

- 4. A complete binary tree of height h has _____ leaf nodes.
 - a) 2^h-1
 - b) 2^(h-1)
 - c) 2^(h-1)+1
 - d) None of the above

Answer: b) 2^(h-1)

- 5. What is the height of a complete binary tree with 15 nodes?
 - a) 3
 - b) 4
 - c) 5
 - d) None of the above

Answer: b) 4

- 6. A complete binary tree can be efficiently stored in an array using:
 - a) Inorder traversal
 - b) Preorder traversal

- c) Postorder traversal
- d) Level order traversal

Answer: d) Level order traversal

- 7. The number of internal nodes in a complete binary tree of height h is:
 - a) 2^h
 - b) 2^h-1
 - c) 2^(h+1)-1
 - d) None of the above

Answer: b) 2^h-1

- 8. What is the parent of the node at index i in an array representation of a complete binary tree?
 - a) i-1
 - b) i/2
 - c) 2*i
 - d) None of the above

Answer: b) i/2

- 9. A complete binary tree of n nodes has its root at index:
 - a) 0
 - b) 1
 - c) n-1
 - d) n

Answer: a) 0

- 10. Which of the following is NOT true about a complete binary tree?
 - a) It can have a maximum of 2^h-1 nodes
 - b) It can have a minimum of 2^(h-1) nodes
 - c) Its last level can have any number of nodes
 - d) All levels except possibly the last level are completely filled

Answer: c) Its last level can have any number of nodes