**Unit 1**

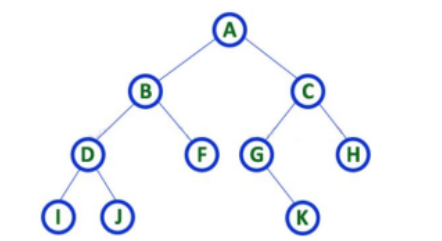
1. Define Algorithm. Explain why analysis of algorithm important?
2. Briefly describe the Master method for solving recurrences of the form

T(n) = aT (n/b) +f(n)

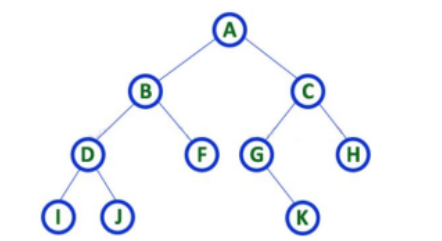
1. How do we compare two algorithms? Explain.
2. Write a note on Method of Guessing and Confirming.
3. Briefly describe the "Big-Omega" and "little-omega" in algorithmic analysis.
4. Write a note on divide-and-conquer approach.
5. What is Asymptotic analysis of an algorithm? Explain.
6. What is divide-and —conquer method of problem solving? Given an example where this method is used.
7. Write a note on method of guessing and confirming.
8. Write the algorithm for printing lines of a file in reverse order.
9. Write a note on commonly used logarithms and summations in algorithmic analysis.
10. Explain how to compare algorithms. Give example.
11. What is meant by asymptotic analysis of algorithm? Explain.
12. Write a note on theta (0)-Notation. Give example.
13. What are the essential properties of algorithms? Explain.
14. Briefly describe the Master Theorem for Divide and Conquer methods.
15. Write a note on Method of Guessing and Confirming.
16. Briefly describe the Master Theorem for Subtract and Conquer Recurrences.

**Unit 2**

1. What are the type of binary tree? Explain any two.
2. Write a note on binary tree traversal.
3. What is an AVL tree? Explain.
4. Define Graph. What are its applications? Explain.
5. What is a minimum spanning tree? Explain with suitable example.
6. Write a note on median-of-median algorithm.
7. What is an AVL tree? Explain its characteristics.
8. What is a traversal of a tree? Compute any two such traversals for the following tree.



1. Briefly describe the concept of topological sorting. Give example.
2. Explain with suitable example the adjacency list and adjacency matrix representations of a graph. Give example.
3. What is a shortest path problem? Explain any one algorithm for finding shortest path in a graph.
4. Define graph. Differentiate between directed and undirected graph. Give examples.
5. What is a binary tree? What are its properties?
6. What is preorder and post order traversal of a binary tree? Compute them for the following tree.



1. Briefly explain the concept of AVL trees.
2. Write a note on various ways of representing graphSj
3. Explain with suitable example the Kruskal algorithm
4. Outline any one algorithm that follows shortest approach.

**Unit 3**

1. What is greedy technique? What are its advantages and disadvantages?
2. Write a note on computer algorithms that are based on divide-and-conquer programming approach. What are the advantages of divide and conquer based algorithms?
3. Write a note on Master theorem.
4. Briefly describe Dynamic Programming Strategy. Also give the Steps of Dynamic Programming Approach.
5. Briefly describe the longest common subsequence (LCS) problem.
6. State the examples of Dynamic Programming Algorithms. Explain any one.
7. What is breadth-first traversal of a tree? Give the algorithm for performing a breadth-first traversal on a tree.
8. Write a note on algorithm design techniques.
9. Briefly explain the Longest Common Subsequence problem.
10. Explain any two problems that can be solved using dynamic programming.
11. What are the elements of greedy algorithm? Explain.
12. Explain the concept of Classification by Implementation Method.
13. Briefly describe the Greedy Property.
14. Explain the divide and conquer approach of designing algorithms. What are its advantages?
15. What is the Longest Common Subsequence problem? Explain.
16. Write a note on dynamic programming.
17. Explain any one algorithm that is based on dynamic programming.
18. Write a note on Classification by Implementation Method.

**Mix**

1. What is Analysis of Algorithm? Why is it important? Explain.
2. List the various properties of binary tree.
3. What is a threaded binary tree? Explain.
4. Write a note on Partition-based Selection Algorithm.
5. What is a Topological Sort? Explain it with a suitable example.
6. Write a note on median-of-median algorithm
7. Explain the structure of threaded binary tree? Give suitable example to illustrate the concept.
8. Define algorithm. State its essential characteristics.
9. Write a note on Master theorem. Give example.
10. Write a note on partition based selection algorithms.
11. Write a note on upper and lower bounds of algorithm.
12. What is a threaded binary tree? Explain with suitable illustration.
13. Briefly describe the median of medians algorithm.
14. What are the Advantages and Disadvantages of Greedy Method?
15. Write a note on partition-based selection algorithm
16. What is analysis of algorithm? Why is it important?