

- C) Explain the following terms in one or two lines (5M)
- Rate of growth
 - Running time of Algorithm
 - Correctness of Algorithm
 - Expression Trees
 - Weighted graphs

Q.2 Attempt the following: (Any THREE) (15M)

- Define Algorithm. Explain why analysis of algorithm important?
- Briefly describe the Master method for solving recurrences of the form $T(n) = aT(n/b) + f(n)$
- How do we compare two algorithms? Explain.
- Write a note on Method of Guessing and Confirming.
- Briefly describe the “Big-Omega” and “little-omega” in algorithmic analysis.
- Write a note on divide-and-conquer approach.

Q.3 Attempt the following: (Any THREE) (15M)

- What are the type of binary tree? Explain any two.
- Write a note on binary tree traversal.
- What is an AVL tree? Explain.
- Define Graph. What are its applications? Explain.
- What is a minimum spanning tree? Explain with suitable example.
- Write a note on median-of-median algorithm.

Q.4 Attempt the following: (Any THREE) (15M)

- What is greedy technique? What are its advantages and disadvantages?
- 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?
- Write a note on Master theorem.
- Briefly describe Dynamic Programming Strategy. Also give the Steps of Dynamic Programming Approach.
- Briefly describe the longest common subsequence (LCS) problem.
- State the examples of Dynamic Programming Algorithms. Explain any one.

Q.5 Attempt the following: (Any THREE) (15M)

- What is Analysis of Algorithm? Why is it important? Explain.
- List the various properties of binary tree.
- What is a threaded binary tree? Explain.
- Write a note on Partition-based Selection Algorithm.
- What is a Topological Sort? Explain it with a suitable example.