AMIT-13 SYSTEM ANALYSIS AND DESIGN

UNIT-1 INTRODUCTION
1.1 Algorithm analysis, Time complexity and space complexity,

1.2 O notation Omega notation and Theta notation.

1.3 DIVIDE AND CONQUER: General Method, merge sort, quick sort, strassen's matrix multiplication.

1.4 GREEDY METHOD: General method, optimal storage on tapes, knapsack problem, minimum spanning tree.

UNIT-2 SET MANIPULATION ALGORITHMS
2.1 Fundamental operation of sets,

2.2 Algorithm for UNION and FIND,

2.3 Introduction to optimal binary search tree,

2.4 Balanced tree schemes, 2-3 tree, AVL tree,

2.5 Dictionary, priority queue, merge able heap,

2.6 Heap for priority queue.

UNIT-3 DYNAMIC PROGRAMMING
3.1 Multistage graphs, optimal binary search trees,

3.2 0/1 knapsack problem,

3.3 Reliability design problem,

3.4 Travelling sales person problem.

UNIT-4 SEARCH AND TRAVERSAL TECHNIQUES
4.1 Efficient non-recursive binary tree traversal algorithms,

4.2 Tree traversal,

4.3 Breadth first search and traversal,

4.4 Depth first search and traversal,

4.5 AND/OR graphs, game tree.

4.6 BACK TRACKING: General method,

4.7 8_queen problem, graph coloring problem.

UNIT-5 BRANCH AND BOUND
5.1 LC search, bounding,

5.2 LC branch and bound, FIFO branch and bound.

5.3 ALGEBRAIC SIMPLIFICATIONA ND TRANSFORMATIONS: General Method, Evaluation and interpolation, modular arithmetic.

Reference Books:
1. E. HOROWITZ and S. SAHNI: "Fundamentals of Algorithms", GALGPTIA.
2. AHO, HOPCRAFT AND ULLMAN: "Design and Analysis of Algorithms" Edition 1984.