

CORE COURSE – VIII - DESIGN & ANALYSIS OF ALGORITHMS

UNIT 1:

Algorithms – Conventions – writing structured programs – Analyzing algorithms – Sorting: Heap sort – Binary Search- Finding the maximum and minimum – merge sort – quick sort – Selection sort.

UNIT 2:

GREEDY METHOD: The general method – optional storage on tapes – Knap sack problems – Job sequencing with dead lines – optional merge patterns – minimum spanning trees – single source shortest paths.

UNIT 3:

DYNAMIC PROGRAMMING: The general method – Multistage graphs – All pairs shortest paths – optional binary search trees – O/I Knapsack – Reliability design the traveling salesman problem – Game tree.

UNIT 4:

BACKTRACKING: The general method – The 8 queens problem – sum of subsets – graph coloring – Hamiltonian cycles – knapsack problem.

UNIT 5:

BRANCH & BOUND: The general method – O/I knapsack problem – Traveling salesperson – Efficiency considerations.

TEXT BOOKS:

Fundamentals of Computer Algorithms – Ellis Horowitz and Sartaj Sahni Galgotia Publications. (Chapters 1 to 5,6,4,7 & 8)