

SARDAR PATEL UNIVERSITY
Programme & Subject: M.Sc – (CA & IT) Semester: I
Syllabus with Effect from: June-2019

Paper Code: PS01CIIT32	Total Credit: 4
Title Of Paper: Analysis and Design of Algorithms	

Unit	Description in Detail	Weightage (%)
I	Review of Data Structures Stacks, queues, linked lists, trees, graphs, heaps and sets along with important operations on it Concepts in algorithm analysis, asymptotic complexity	25%
II	Divide and Conquer The general method Binary search, Finding maximum, minimum Merge sort, Quick sort Strassen's matrix multiplication	25%
III	Greedy Method General method Optimal storage in tape, Knap sack Job sequencing with deadlines Spanning trees, Shortest paths	25%
IV	Dynamic Programming. General method Multistage graphs Optimal binary search trees ,0/1 knapstack, Travelling salesman problem	25%

Basic Text & Reference Books:-

- Horowitz, Ellis & Sahni, Sartaj : Fundamental of data structures, computer science Press ,Potomac maryland, 1976.
- Aho, A. V., Hopcroft, J. E., Ullman J. D. : The Design and Analysis of Computer Algorithms, Addison-Wesley Pub. Co., 1974.
- Horowitz Ellis & Sahni Sartaj : Fundamentals of Computer Algorithms, Galgotia Pub. Pvt. Ltd., New Delhi, 1993.
- Goodman, S. E. & Hedetniemi, : Introduction to the Design and Analysis of Algorithms, McGrawHill Book Comp., 1977.
- Kunth. D. E. : Fundamentals of Algorithms : The Art of Computer Programming Vol. 1, Narosa Pub. House, 1985.

