



BITS edu campus

Institute of Technology

CSE Department

B.E. 5th Semester

ANALYSIS AND DESIGN OF ALGORITHMS

SUBJECT CODE: 2150703

Unit (1 to 5)

Most Frequently Asked Questions

Book 1	Introduction to Algorithms, Thomas H. Cormen, Charles E. Leiserson, Ronald L. Rivest and Clifford Stein, PHI.
Book 2	Fundamental of Algorithms by Gills Brassard, Paul Bratley, PHI.
Book 3	Design Analysis and Algorithm. By Hari Mohan Pandey Online Link : http://www.adslwi-fi.com/aa.php?isbn=ISBN:8131803341&name=Design_Analysis_and_Algorithm
Book 4	Introduction to Design and Analysis of Algorithms, Anany Levitin, Pearson.

	Question	Page No.	Book No.
1	What is an algorithm? Explain various properties of an algorithm.	1	3
2	Explain Asymptotic Notations. What do you mean by Case, Best Case & Average Case and time complexity and space complexity?	15,16,22,23,27	3
3	Explain the use of Divide and Conquer Technique for Binary Search Method. Give the algorithm for Binary Search Method. What is the complexity of Binary Search Method?	120,121,122,123 And Lecture Note	3
4	Explain Heap Sort with example and also discuss its complexity.	66 to 77, 77 to 81	3

5	Explain Quick Sort Method with example. Give its Time Complexity.	Example and Analysis :108 to 114 (Book No. 3) For Algo: Lecture Note	
6	Explain how divide and conquer method help multiplying two large integers.	219,220,221	2
7	Explain merge sort with example and evaluate its complexity.	Lecture Note	
8	Give and Explain the Prim's Algorithm to find out Minimum Spanning Tree with illustration.	196,197,198	2
9	Give and Explain the Kruskal's Algorithm to find out Minimum Spanning Tree with illustration.	193,194,195	2
10	Explain Huffman code with example.	428 to 433	1
11	Explain Dijkstra's algorithm.	658,659,661,662	1
12	Compare Dynamic Programming Technique with Greedy Algorithms.		
13	Explain how to find out Longest Common Subsequence of two strings using Dynamic Programming method. Find any one Longest Common Subsequence of given two strings using Dynamic Programming. S1=abbacdcba S2=bcdbbcaac	390 to 395	1
14	What is Principle of Optimality? Explain its use in Dynamic Programming Method.	359,378,379	1
15	Solve making change problem using DP. (denominations:d1=1, d2=4, d3=6). Give your answer for making change of Rs. 8.	263 to 265	2
16	Solve the following 0/1 Knapsack Problem using Dynamic Programming. There are five items whose weights and values are given in following arrays. Weight w[] = { 1,2,5,6,7 } Value v[] = { 1,6,18, 22, 28 } Show your equation and find out the optimal knapsack items for weight capacity of 11 units.	266 to 268 Examples : Lecture Note Folder	2
17	Using algorithm find an optimal parenthesization of a matrix chain product whose sequence of dimension is (5,10,3,12,5,50,6) (use dynamic programming).	370 to 377	1