

Roll No.

35001

Printed Pages : 2

BT-5 / D-19

DESIGN AND ANALYSIS OF ALGORITHM

Paper-CSE-301

Time allowed : 3 hours]

[Maximum marks : 100

Note : Attempt any five questions out of eight questions selecting at least one question from each unit.

Unit-I

1. What is the Need for Analysis of algorithm and also write the Asymptotic Notations of $f(n) = 4.n^3 + 10.n^2 + 5.n + 1$. 20
2. What is the slowest sorting algorithm and why? Write Pseudo Code for recursive Quick Sort function. 20

Unit-II

3. What do you mean by dynamic programming. Explain fib series example with the help of recursion and dynamic programming. 20
4. What are the applications of Binary Heap. Explain UPDATE operation in Binomial Heap. 20

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Unit-III

5. Write a Floyd Warshall Algorithm and apply it on the following graph $W = \{ \{0, 5, \text{INF}, 10\},$
 $\{ \text{INF}, 0, 3, \text{INF} \},$
 $\{ \text{INF}, \text{INF}, 0, 1 \},$
 $\{ \text{INF}, \text{INF}, \text{INF}, 0 \} \}$ 20
6. What is application of Prim's Minimum Spanning Tree Algorithm and write its algorithm and its complexity. 20

Unit-IV

7. What are the condition in Maximum Bipartite Matching and solve the following problem with the help of it.
 "There are M job applicants and N jobs. Each applicant has a subset of jobs that he/she is interested in. Each job opening can only accept one applicant and a job applicant can be appointed for only one job. Find an assignment of jobs to applicants in such that as many applicants as possible get jobs. 20
8. What is Bitonic Sort and bitonic sequence. Convert the following sequence to bitonic sequence : 3, 7, 4, 8, 6, 2, 1, 5. 20