

2222

**B.E. 5th Semester (CSE) Examination,
December-2012**

ANALYSIS AND DESIGN OF ALGORITHMS

Paper-CSE-305-E

Time allowed : 3 hours]

[Maximum marks : 100

Note : Attempt any five questions. All questions carry equal marks.

1. (a) What do you mean by Asymptotic Notation ?
Explain various types of asymptotic notations.
(b) What do you mean by Quick Sort ? Explain its time complexity.
2. (a) What do you mean by Strassen's Matrix Multiplication ? Explain its complexity.
(b) Sort the following list of elements using Heap Sort.
20, 30, 10, 5, 7, 8, 17, 90, 80, 70, 65, 76, 88, 22, 55, 89
3. What do you mean by knapsack problem ? How it is solved by Greedy approach ? Explain with suitable example.

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[P.T.O.]

4. (a) What do you mean by Optimal Binary Search Tree ? Explain with suitable example.
(b) What is travelling salesman problem ? How it is solved by using dynamic programming ?
5. (a) What is Graph coloring ? Explain with its algorithm. Also give some suitable example.
(b) What is difference between backtracking and dynamic programming ? How backtracking is used for solving the 8 Queen problem ?
6. (a) Explain some principles for efficiency consideration.
(b) What do you mean by branch and bound strategy ? How it solves the all pair shortest path problem ?
7. (a) Explain the Cook's theorem in detail.
(b) Differentiate between NP hard and NP complete problems. Explain some NP Hard problems.
8. Write short notes on the following :
 - (a) Binary Search
 - (b) Merge sort
 - (c) Job sequencing with dead Line
 - (d) Least cost searching