Design and Analysis of Algorithms

2008 May

Science Information Technology

FYBSc-IT

Semester 2

University Exam

University of Mumbai

B. Sc. (IT) Sem II   May 2008

Con. 105-08.   Design & Analysis of Algorithms   PM-1220

(3 Hours)   [Total Marks : 100

N. B. :   (1) Question No. 1 is compulsory.
          (2) Attempt any four question from Q. 2 to Q. 6.

1. (a) Explain List, Linked List.   5
    (b) Define Stack and its properties.   5
    (c) Explain the property of Queues.   5
    (d) Write a short note on Heap.   5

2. (a) Explain Divide and Conquer Approach with suitable Algorithm.   10
    (b) Explain Strassen's matrix multiplication with suitable example.   10

3. (a) Explain in detail Greedy method with suitable Algorithm.   10
    (b) Explain Quick sort & Merge sort Algorithm.   10

4. (a) Explain with suitable Algorithm BFS and DFS methods.   10
    (b) Explain the concept of minimum spanning tree.   5
    (c) Explain binary search tree concept.   5

5. (a) Explain selection sort method with suitable Algorithm.   10
    (b) Explain knapsack problem and 8 queen's problem.   10

6. (a) Define graphs. Explain the concept of AND/OR graphs. Write a short note on graph   12
         coloring concept.
    (b) Explain sets and Disjoint set property. Define cardinality.   8