Design and Analysis of Algorithms

2010 June

Science Information Technology

FYBSc-IT

Semester 2

University Exam

University of Mumbai

F.Y. B.Sc.(IT) Sem II June 2010

Design & Analysis of Algorithms

32 : 1st half-10-DD (F)

Con. 85-10. **NR-1335**

(3 Hours) **[Total Marks : 100**

(**N.B.** : Question No. **1** is **compulsory**, attempt any **four** questions from Question Nos. **2** to **7**.)

1. (a) Explain Greedy method with suitable algorithm. **10**
   (b) Explain Heap and Heapsort mechanism with suitable algorithm. **10**

2. (a) What are linked list ? Explain insertion and deletion in a linked list with suitable algorithm. **10**
   (b) Write a short notes on :— **10**
      (i) Minimum Spanning Tree
      (ii) Graphs and its types.

3. (a) Explain selection sort mechanism with suitable algorithm. **10**
   (b) Explain Breadth first search and Depth first search in detail with suitable algorithm. **10**

4. (a) What are arrays ? Explain memory representation of elements in array. **10**
   (b) Explain Quick-sort mechanism with suitable algorithm and example. **10**

5. (a) Explain Divide and Conquer general method with suitable example. **10**
   (b) What are "Queues" ? Explain how to insert and delete an Element from Queue with suitable algorithm. **10**

6. (a) Write a short notes on :— **10**
      (i) AND/OR graphs
      (ii) Game trees.
   (b) What is Stack ? Explain Push and Pop operation on Stack with suitable algorithm. **10**

7. (a) What are binary trees ? Explain operations performed on binary tree. Explain Binary search tree in detail. **10**
   (b) Explain Back tracking general method of 8-queens problem with suitable example. **10**
