Roll No. ....

Total Pages : 03

BT-3/D-19   33002

DATA STRUCTURES
CSE-203E

Time : Three Hours]　　　　　　[Maximum Marks : 100

Note : Attempt *Five* questions in all, selecting *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) Define Data Structure. How can you implement static and dynamic data structures ? Explain using suitable examples.   10

   (b) What is meant by ordered list ? Discuss various operations that can be performed on ordered list.

        10

2. (a) Write down algorithms to insert and delete an element in a one-dimensional array.   10

   (b) Explain any *two* applications of stacks by showing how and where stack is used in those applications ?

        10

Unit II

3. (a) Discuss the sequential and linked representations of queues and stacks using suitable examples.   10

   (b) Write algorithms to insert an element in a queue using both sequential and linked representation. 10

4. Write down the algorithms for deleting an element with known information about the element from a singly, doubly and circular linked list.   20

Unit III

5. (a) What is a binary tree ? Explain memory representation of binary trees using both sequential and linked representation.   10

   (b) Write and explain the algorithm for postorder traversal of a binary tree.   10

6. What is a Bianry Search Tree ? Write the algorithms for inserting and deleting a node from a binary search tree and explain with the help of suitable examples.   20

Unit IV

7. (a) Write down the algorithm for traversing a grpah using BFS and explain the same using suitable example.   10

(b) Write down the algorithm for sorting the given data using selection sort.   10

8. (a) What do you mean by Collision in Hashing ? How this can be handled ? Explain.   10

(b) Explain Kruskal's algorithm for finding minimum-spanning tree using suitable example.   10