BCA/M-22   **1878**

ADVANCED DATA STRUCTURE
BCA-241

Time : Three Hours]   [Maximum Marks : 80

Note : Q. No. **1** is compulsory. Attempt *Five* questions in all, selecting *one* question from each Unit in addition to compulsory Q. No. **1**. All questions carry equal marks.

1. (a) What is binary search tree ? Describe applications of binary search trees.   **3**

    (b) Explain briefly adjacency matrix with a suitable example.   **3**

    (c) Compare linear and library search algorithm.   **3**

    (d) What are the advantages of direct file organization ?

                                                        3

    (e) What do you mean by hashing ?   **2**

    (f) Define path matrix.   **2**

Unit I

2. (a) Discuss various methods of representation of binary tree in computer memory.   **8**

(b) Write recursive algorithm for preorder traversal of binary tree. **8**

3. (a) Write algorithms for deletion of a node in binary search tree. **8**

(b) What is expression tree ? Explain with a suitable example. **8**

Unit II

4. (a) What is weighted graph ? Describe with a suitable example. **8**

(b) Write Warshall's algorithm for the shortest path. **8**

5. Write short notes on the following : **16**
   (a) Tree Graph (b) Isolated Node
   (c) Adjacency List (d) Depth First Traversal.

Unit III

6. (a) Write an algorithm to sort a given list of elements using quick sort method. **8**

(b) Explain tournament sort with a suitable example. **8**

7. (a) What is merging ? Write an algorithm to sort a given list using merge sort technique. **8**

(b) Explain radix sort using an example. What is the complexity of radix sort algorithm ? **8**

Unit IV

8. (a) Explain different types of file depending on their function. **8**

(b) What is file organization ? Explain sequential file organization. **8**

9. (a) What is collision ? Discuss various collision resolution techniques. **8**

(b) Differentiate indexed sequential and direct file organization. **8**