

Roll No.

Total Pages : 03

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

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- (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