

Roll No.

Total Pages : 03

BCA/M-23

1870

ADVANCED DATA STRUCTURE

BCA-241

Time : Three Hours]

[Maximum Marks : 80

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

(Compulsory Question)

1. Explain the following in brief :

8×2=16

- (i) Binary Tree
- (ii) General Tree
- (iii) Graph
- (iv) Shortest Path in a Graph
- (v) Internal Sorting
- (vi) Complexity of an Algorithm
- (vii) File
- (viii) Hashing.

Unit I

2. What is Binary Search Tree (BST) ? Write an algorithm to search an element in a BST. Explain in detail using suitable examples. 16
3. What is Huffman's Algorithm ? Explain using suitable examples and state its applications in detail. 16

Unit II

4. (a) Discuss the various ways to represent graphs in computer memory using suitable examples. 8
(b) Write Warshall algorithm for finding the shortest path. 8
5. What are the various ways to traverse a graph ? Explain in detail by writing suitable algorithms and examples. 16

Unit III

6. What is Quick Sort ? Explain by writing its algorithm and using suitable examples. Also comment on its complexity. 16
7. What are the various Searching Algorithms ? Explain by writing algorithms and comparing them on the basis on complexity. 16

Unit IV

8. What are the various operations that are performed on a file ? Explain in brief. Explain any three-four functions in detail using suitable examples. 16
9. What are the various types of file organizations ? Explain in detail and compare them on the basis of various parameters. 16