

Roll No. ....

Total Pages : 03

**BCA/M-24**

**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 Search Tree
- (ii) Huffman's Encoding
- (iii) Adjacency Matrix
- (iv) Traversal in a Graph
- (v) External Sorting
- (vi) Linear Search
- (vii) Attributes of a File
- (viii) Hash function.

## Unit I

2. What is Tree Traversal ? What are the various ways to traverse a binary tree ? Explain any *one* algorithm for tree traversal in detail by writing algorithm and using suitable example. 16
3. Write down the algorithm for deleting an element from a Binary Search Tree. Explain using suitable example in detail. 16

## Unit II

4. Write down the Dijkstra's algorithm for finding the shortest path. Explain using suitable example. 16
5. How can you insert a node and an edge in a graph ? Explain by writing algorithms and using suitable examples. 16

## Unit III

6. What is Heap Sort ? Explain by writing its algorithm and using suitable examples. Also comment on its complexity. 16
7. Write and explain the working of radix and tournament sort using suitable examples. 16

#### Unit IV

8. What is meant by Hashing ? Explain various techniques for handling collision resolution in detail using suitable examples. 16
9. What are the various types of files ? How can you classify the various files ? Explain in detail along with their comparison on the basis of various parameters. 16