

BCA/M-21**1893****ADVANCED DATA STRUCTURE****Paper–BCA-241**

Time Allowed : 3 Hours]

[Maximum Marks : 80

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

Compulsory Question

1. (a) What is External path length? Illustrate with example. 3
- (b) Explain briefly Directed graph. 3
- (c) What is the complexity of quick sort in best and worst cases? 3
- (d) What are the disadvantages of Sequential file organization? 3
- (e) What do you mean by Collision? 2
- (f) What is Max heap? 2

UNIT–I

2. (a) What is Binary search tree? Write an algorithm for searching a node in Binary search tree. 8
- (b) Write an algorithm for inorder traversal of Binary tree using Stack. 8
3. (a) Generate Huffman's tree with a suitable example. 8
- (b) What are the advantages of Linked list representation of Binary tree over Sequential representation? Explain. 8

UNIT–II

4. (a) Explain various methods of representation of Graphs in Memory. 8
- (b) Write an algorithm for breadth First traversal of Graph. 8
5. (a) What is Path matrix? Illustrate with an example. 8
- (b) Discuss the Dijkstra's algorithm for shortest path. 8

UNIT-III

6. Write short notes on the following : 16
- (a) Heap sort. (b) Tournament sort.
(c) Merge sort. (d) Radix sort.
7. (a) What is Sorting? Differentiate Internal and External sorting. 8
(b) What are the advantages and disadvantages of Binary Search algorithm over Linear Search algorithm? Explain. 8

UNIT-IV

8. (a) What is a File? Describe various file operations. 8
(b) Discuss different Operations that can be performed on Direct file. 8
9. (a) What is Hashing? Explain various Hashing algorithms. 8
(b) Explain indexed Sequential File Organization. 8