Roll No. ..... Total Pages : 2

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) Wha 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