Roll No. ..... Total Pages : 3

BCA/D-14 **834**

DATA STRUCTURE

Paper–BCA-232

Time Allowed : 3 Hours] [Maximum Marks : 80

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

Compulsory Question

1. (a) Define Primitive Data Types. 1

   (b) Differentiate ARRAY and LIST. 3

   (c) Write Best case, Worst case and average case complexity for Bubble and Selection SORT. 3

   (d) Convert (A + B) * C – D into prefix and postfix. 3

   (e) What is Dequeue and its use? 3

   (f) Differentiate Stack and Queue. 3

UNIT–I

2. (a) Define Data Structure and explain data structure operations.

   (b) Explain Algorithms complexity in Selection SORT, Binary search. 16

3. Define String, its various operations. Also explain any one Pattern-matching algorithm. 16

UNIT–II

4. (a) Define ARRAY, it types and storage.

   (b) Write note on sparse matrix and give an algorithm to Insert an element in 1-D Array. 16

5. (a) Discuss Algorithm to Insert a node at Start and End in a Single Linked List.

   (b) Show presentation of SLL, DLL and CLL. 16

UNIT–III

6. (a) Discuss LCFS. Write application of STACK.

   (b) Write Algorithm for PUSH, POP. 16

7. (a) Explain FIFO and its representations. Discuss applications of Queue.

   (b) Write on Algorithm to Insert in simple Queue. 16

UNIT–IV

8. (a) Define TREE, Binary tree. Show representation of TREE in various ways.

(b) Write Algorithm using Recursion for Inorder and Post-order Traversal. 16

9. Define Graph, its types and representations. Explain Warshall's algorithm. 16