

Roll No.

Printed Pages : 2

33081

BT-3 / D-17

DATA STRUCTURES

Paper-CSE-203N opt. (I)

Time allowed : 3 hours]

[Maximum marks : 75

Note :- Attempt five questions in all, selecting atleast one question from each unit. All questions carry equal marks.

Unit-I

1. (i) Explain different data structure operations. 5
- (ii) Write a short note on Sparse Matrices. 5
- (iii) What is an algorithm? What are its characteristics? 5
2. Explain the concept of algorithm complexity. Discuss the time and space complexity. 15

Unit-II

3. (i) Describe the circular queue and its implementation. 8
- (ii) Explain the applications of Queues. 7
4. (i) Convert the following infix expression to post fix expression using stack: 10
$$A * (B + (C + D) * (E + F) / G) * H$$
- (ii) Explain the quick sort algorithm with the help of a suitable example. 5

Unit-III

5. (i) How is traversing performed on a singly linked list? 8

121

- (ii) What is a doubly linked list? How it is different from a singly linked list? 7

6. (i) Explain the need of dynamic data structures. Compare between static and dynamic implementation of linked list. 10
- (ii) Write short note on circular linked list. 5

Unit-IV

7. Define binary tree. Explain the pre-order, post - order and in-order traversals with the help of suitable example. 15
8. Explain graph traversals algorithms using suitable example. 15