

Roll No.

Total Pages : 02

BT-3/D-19

33081

DATA STRUCTURES

CSE-203N/IT-203N

Time : Three Hours]

[Maximum Marks : 75

Note : Attempt *Five* questions in all, selecting at least *one* question from each Unit. All questions carry equal marks.

Unit I

1. (a) Describe an algorithm. Explain the concept of space and time complexity. 8
- (b) What do you understand by Sparse matrices ? 7
2. (a) Write an algorithm for Binary search from an array. 7
- (b) Explain selection sort with the help of a suitable example. 8

Unit II

3. (a) Explain the applications of queues. 3
- (b) Write an algorithm to convert an infix expression into post fix expression using stack. 7

4. (a) Write a short note on priority queue. 8
- (b) Explain the advantages of using circular queue over sequential queue. 7

Unit III

5. (a) Explain the insertion operation on a singly linked list. 8
- (b) Describe doubly linked list with the help of a suitable diagram. 7
6. (a) Explain circular linked list. 8
- (b) Write a short note on static and dynamic implementation of linked list. 7

Unit IV

7. (a) Explain the three (pre-order, in-order, post-order) Binary tree traversals using an example. 10
- (b) Write a short note on threaded binary tree. 5
8. (a) Explain breadth first and depth first graph traversals using a suitable example. 12
- (b) Explain minimum spanning tree. 3