No. of Printed Pages : **1**

Sl. No.

21CSC1C1L

M.Sc. I Semester Degree Examination, April/May- 2023

COMPUTER SCIENCE

Data Structure and Algorithms

Time : 3 Hours Maximum Marks : 70

Note : *Answer* ***any five*** *questions (Question No.* ***1*** *is* ***compulsory****)*

1. (a) Define Data Structure. Explain different types of Data Structure. **7**
(b) Explain time and space analysis of an algorithm. **7**

2. (a) Define an array ? How can we represent and declare an array ? Explain with suitable syntax. **7**
(b) How the Sparse matrix is different by Linear matrix. Explain with suitable example. **7**

3. (a) Define tree ? Explain Inorder, Postorder, Preorder in binary tree traversal. **7**
(b) Demonstrate the representation of Graphs. **7**

4. (a) What is sequential search ? Write a pseudo code to implement sequential search. **7**
(b) Write and explain working of merge sort algorithm. **7**

5. (a) Explain hashing technique with suitable example. **7**
(b) List out and explain different types of collision resolution techniques in hashing. **7**

6. (a) Write a program to evaluate postfix expression. **7**
(b) Solve Tower of Hanoi puzzle which is having 3 disks. **7**

7. (a) Sort the given array using quick sort technique. **7**
24 9 29 14 19 27
(b) Write and explain the binary search algorithm. **7**

8. Write a note on the following : **5+5+4**
(i) Double Ended Queue.
(ii) Operations on Stacks.
(iii) Depth first search.

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