No. of Printed Pages : 03 Roll No. .....

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B. Tech. EXAMINATION, 2022

(Third Semester)

(C Scheme) (Main & Re-appear)

(CSE, ECE)

CSE201C

DATA STRUCTURES AND ALGORITHMS

Time : 3 Hours] [*Maximum Marks : 75*

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

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

Unit I

1. What do you mean by asymptotic notation ? Explain various types of it. **15**

2. What are arrays ? What are their advantages ? Write an algorithm to find matrix addition of two matrices. **15**

Unit II

3. By using algorithm of infix to postfix conversion, convert the following expression to postfix notation :

a + b*(c + d – e)^(f + g * h) – I.

Also show all intermediate steps. **15**

4. What is a queue ADT ? Clearly write algorithm for insertion into and deletion of any data item from a circular queue. Also describe the various applications of priority queue. **15**

Unit III

5. Write algorithm for into a binary search tree. **15**

6. Compare a Binary tree, Binary search tree and AVL tree. Also write applications of Binary tree. **15**

Unit IV

7. What is divide and conquer strategy in algorithm designing ? Which sorting algorithm is based on divide and conquer ? Write its steps. **15**

8. Write algorithm for breadth first search. **15**