

Roll No.

OLE-3031

B. Tech. 3rd Semester (CSE) Examination – April, 2021

DATA STRUCTURES & ALGORITHMS

Paper : PCC-CSE-203-G

Time : Three Hours]

[Maximum Marks : 75

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

Note : Question No. 1 is *compulsory*. Remaining, attempt *one* question from one Unit. Attempt *five* questions in all.

1. Write short note on the following : $2.5 \times 6 = 15$

- (a) Bubble Sort
- (b) Application of Binary Trees
- (c) Threaded Binary Tree
- (d) Graph Data Structure

- (e) Linear Search
- (f) Doubly Linked list

UNIT – I

- 2. (a) What is an algorithm ? Define its complexity in term of time and space with suitable example. 10
- (b) What is data structure ? Explain its type. 5
- 3. What is searching ? Explain Binary Search algorithm with relevant example. How Binary Search is better than linear search ? Explain. 15

UNIT – II

- 4. (a) What is stack ? Write algorithms for insertion and deletion for stack data structure. Explain with relevant example. 10
- (b) Write short note on applications of stack. 5
- 5. (a) What is circular queue ? Write the operations performed on circular data structure. 10
- (b) What is priority queue ? Explain with relevant example. 5

UNIT – III

6. What is linked list ? Write algorithms for insertion and deletion for linked list data structure. 15
7. Write short note on the following :
- (a) AVL Tree
 - (b) B + Tree

UNIT – IV

8. Explain Quick sort with relevant example. Also, write the algorithm for same. 15
9. What are graph traversal algorithms ? Explain in detail. 15
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