Roll No. .....

3031

B. Tech. 3rd Semester (CSE)

Examination – March, 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 : Attempt *five* questions in all, selecting *one* question from each Unit. Question No. **1** is ***compulsory***. All questions carry equal marks.

1. Explain the following : 15

   (a) Define graph data structure.

   (b) Differentiate between Linear search and Binary search techniques.

   (c) What is AVL tree ?

   (d) What is sorting ? What are the properties of sorting algorithm ?

   (e) Explain postfix notation.

   (f) Define traversal of graph.

   (g) What is circular queue ?

   (h) How to design and develop algorithms ? Explain.

UNIT – I

2. How to measure complexity of algorithm ? What are the types of notations used for it ? Explain in detail. 15

3. Write an algorithm to implement binary search technique. Also find the complexity of algorithm. 15

UNIT – II

4. What is Queue ? Explain array representation of queue. Also discuss the applications of queue. 15

5. What is Stack ? Explain linked list representation of stack with example. 15

UNIT – III

6. What is linked list ? Explain in detail about doubly linked list and operations on doubly linked list with example. 15

7. What is Binary Tree ? Also explain dynamic implementation of it. 15

UNIT – IV

8. Write an algorithm to implement quick short in detail. Explain with example. 15

9. Write an algorithm for Depth First traversal of a graph. Explain with example. 15
