

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**

**BE - SEMESTER-III • EXAMINATION – WINTER • 2014**

**Subject Code: 2130702**

**Date: 01-01-2015**

**Subject Name: Data Structure**

**Time: 02.30 pm - 05.00 pm**

**Total Marks: 70**

**Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

- Q.1** (a) Write short note on performance analysis and performance measurement of an algorithm. **07**  
(b) Write a selection sort algorithm and also discuss its efficiency. **07**
- Q.2** (a) What is Stack? List out different operation of it and write algorithm for any two operation. **07**  
(b) Write a 'C' program or an algorithm to convert infix expression without parenthesis to postfix expression. **07**
- OR**
- (b) Write user defined C function for inserting an element into circular queue. **07**
- Q.3** (a) What is a Queue? Write down drawback of simple queue. Also write an algorithm for deleting an element from circular queue **07**  
(b) Write down advantages of linked list over array and explain it in detail. **07**
- OR**
- Q.3** (a) Write an algorithm to delete a node from doubly linked list. **07**  
(b) Convert  $A+(B*C-(D/E^F)*G)$  infix expression into postfix format showing stack status after every step in tabular form. **07**
- Q.4** (a) Define the following terms. 1) Graph 2) Tree 3) Multi graph 4) Weighted graph 5) Elementary path 6) Complete Binary tree 7) Descendent node **07**  
(b) List out different traversal way of tree and demonstrate any two with example. **07**
- OR**
- Q.4** (a) Write an algorithm to delete a node from tree. **07**  
(b) Explain BFS and DFS in detail. **07**
- Q.5** (a) Explain AVL tree with example. **07**  
(b) List out different hash methods and explain any three. **07**
- OR**
- Q.5** (a) Write down precondition and algorithm of binary search method. **07**  
(b) Explain file in terms of fields, records and database. **07**

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