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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