Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME SEMESTER – I EXAMINATION – SUMMER 2017

Subject Code: 2710314 **Date:11/05/2017**

Subject Name: Data Structure with Object oriented programming

Time:02:30 p.m. to 05:00 p.m. **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)**	Evaluate the following postfix expression using a stack. Show the stack contents. AB*CD$-EF/G/+ A=5, B=2, C=3, D=2, E=8, F=2, G=2	**07**
	(b)	Write an algorithm/program to insert an element in a queue.	**07**
Q.2	**(a)**	Write an algorithm/program to search an item in a given Linked List.	**07**
	(b)	Explain with example to check if an expression has balanced parenthesis using stack.	**07**
		OR	
	(b)	Write C++ program for Fibonacci series using recursive function.	**07**
Q.3		Create a Binary Search Tree for the following data and do in-order, Preorder and Post-order traversal of the tree. 9, 37,95,32,65,49,12,43,60,75	**14**
		OR	
Q.3		What do you mean by Hashing? Explain any FOUR hashing techniques.	**14**
Q.4	**(a)**	Write an algorithm for insert operation at end in doubly Linked List.	**07**
	(b)	Explain direct and indirect recursion using example.	**07**
		OR	
Q.4	**(a)**	Organize an array of following elements as a heap with a bottom-up method. 2, 8,6,1,10,15,3,12,11	**07**
	(b)	Explain in detail skip lists	**07**
Q.5		Write an algorithm/program for sorting the following integers using bubble sort. 32, 51, 27, 85, 66, 23, 13, 57. Also show the stepwise bubble sort method involved in sorting the integers	**14**
		OR	
Q.5		Explain with example how shortest path can be obtained in a graph using Dijkstra's algorithm	**14**

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