## **GUJARAT TECHNOLOGICAL UNIVERSITY** ME – SEMESTER-1 (NEW) EXAMINATION – WINTER 2016

Subject Code:2710314Date:06/01/20Subject Name: Data Structure with Object oriented programmingTime: 2:30 pm to 5:00 pmInstructions:			017	
			70	
	1 2 3	<ul> <li>Attempt all questions.</li> <li>Make suitable assumptions wherever necessary.</li> <li>Figures to the right indicate full marks.</li> </ul>		
Q.1	(a)	Write an algorithm/program to insert an item at a specified location in a given	07	
	<b>(b</b> )	Write an algorithm for evaluating expression using stack. Explain in detail with the help of example showing each steps.	07	
Q.2	(a) (b)	Write an algorithm/program to insert an element in a circular queue. Explain in detail sparse tables.	07 07	
	(b)	OR Explain excessive recursion using example.	07	
Q.3		Create a Binary Search Tree for the following data and do in-order, Preorder and Post-order traversal of the tree. 35,40,12,6,57,83,76,14,93,68,44,29,2,33	14	
Q.3		Define Graph. Write an algorithm to do BFS and DFS traversal of a Graph.	14	
Q.4		Write an algorithm/program for sorting the following integers using quick sort. 32, 51, 27, 85, 66, 23, 95, 13, 47. Also show the stepwise quick sort method involved in sorting the integers	14	
Q.4		<b>OR</b> Write an algorithm/program for sorting the following integers in descending order using insertion sort. 12,70,54,67,32,28,4,10,85 Also show the stepwise insertion sort method involved in sorting the integers	14	
Q.5	(a)	Define data structure. Briefly explain linear and non linear data structures with	07	
	(b)	Write an algorithm/program to create balanced binary search tree from an ordered array. Explain with example.	07	
Q.5	(a) (b)	<b>OR</b> Explain Huffman encoding with the help of example What do you mean by Hashing? Explain any three hashing techniques.	07 07	

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