GUJARAT TECHNOLOGICAL UNIVERSITY MCA - SEMESTER-II • EXAMINATION – SUMMER • 2015

Subject Code: 2620001 Date:2			8-05-2015	
Su Tir Inst	Time:10:30 am - 01:00 pm Total Mar Instructions:			
	1. 2. 3.	Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks.		
Q.1	(a)	 (1) Asymptotic notation (2) Storage representation of strings (3) Trie structures 	03 02 02	
	(b)	Define singly linked list. Write the algorithm and explain the deletion operation on singly linked list	07	
Q.2	(a)	(1) Define queue. Explain the algorithm of insert operation in a circular queue with an example	05	
	(b)	(2) what is simulation Define stack. Explain the applications of stack.	02 07	
	(b)	Explain the row major and column major order representation of two dimensional array	07	
Q.3	(a)	Explain the traversal operations in a binary tree with an example. Write the algorithm for preorder traversal.	07	
	(b)	(1) What is a sparse matrix? Explain the sequential representation of sparse matrix.(2) Differentiate DFS and BFS	04 03	
0.3	(a)	OR Define spanning tree. Explain the Primøs and Kruskaløs algorithm for minimum	07	
Q .0	(a) (b)	spanning tree with an example. Define graph. Explain the different storage representations of graph.	07 07	
Q.4	(a)	Define a heap. Explain the creation of min heap and max heap for the following set of data [50,85,34,60,88]	07	
	(b)	Write short notes on (1) M-ary tree (2) 2-3 trees (2) - 1 trees	02 02	
		(3) Avl tree	03	
Q.4	(a)	Define binary tree? Explain the deletion operations in a binary search tree with an example	07	
	(b)	How can we represent a node in a doubly linked list? Explain the different insertion operations on a doubly linked list.	07	
Q.5	(a)	Write the algorithm for merge sort and sort the following numbers using merge sort [35,20,65,10,60,50,80,30,90,75].	07	
	(b)	what is hashing? Explain the hashing functions with example	07	
Q.5	(a)	Write the algorithm for quick sort and sort the following numbers using quick sort [35,20,65,10,60,50,80,30,90,75].	07	
	(b)	Compare the algorithms of insertion sort with bubble sort and obtain complexity of the best case ,worst case and average case	07	
