		Reg. No.										
	<ul> <li>MANIPAL INSTITUTE OF TECHNOLOGY, MANIPAL 576104 (Constituent College of Manipal University)</li> <li>FOURTH SEMESTER B.TECH DEGREE MAKEUP EXAMINATION, JULY – 2016 SUBJECT: OPEN ELECTIVE – I: DATA STRUCTURES (ICT 340) (REVISED CREDIT SYSTEM)</li> </ul>											
Manipa INSPIRED BY L												
	IME: 3 HOURS         09/07/2016         MAX. MARKS: 50										50	
•	Instruct Answer any FIVE FULL questions. Missing data, if any, may be suitably ass	ions to cano sumed.	didat	tes								
1A. 1	1A. How can you represent a polynomial using linked list? Write the structure definition. Write the necessary functions to add two polynomials.											
1B.	What is an expression tree? Write an expr $A/(B-C)+(D^*(E-A)^*C)$	ression tree	for tl	ne fo	llow	ing i	nfix	expr	essio	n.		
1C.	What is a threaded binary tree? Explain with a proper example.									[5+3+2]		
2A.	<ul> <li>Write functions for the following operations on a doubly linked list.</li> <li>a) Create</li> <li>b) Delete a node given the key</li> <li>c) Print</li> </ul>											
2B.	Sort the following elements using radix sort.											
2C.	Differentiate between constructor and destructor with examples in C++. $[5+3+2]$											
3A.	What is the difference between linear queue and a double ended queue? Write functions to mplement different operations on a deque.											
3B. 3C.	Write a function to exchange two nodes in a singly linked list by updating pointersHow can you represent a binary tree using an array? Explain with an example.[5+3+2]										[5+3+2]	
4A.	Write functions to perform preorder, inorder and postorder traversals of a tree. Perform those operations on the tree shown in Fig.Q.4A.											
4B. 4C.	Write a function to count the number of What is a sparse matrix? Explain with an	leaf nodes in n example.	n a bi	inary	r tree	•					[5+3+2]	
5A.	Write a function to traverse a graph using Breadth First Search. Trace the function for the graph shown in Fig. Q.5A.											
5B. 5C.	Evaluate the following expression using Discuss the time requirement to perform	stack: 9/4-7 binary sear	7-3/6 rch ai	*3 nd lii	near	searc	ch.				[5+3+2]	
6A. 6B.	Write a function to delete a node from a Write a function to search for a node by	Binary Sear traversing th	ch T ne tre	ree c e.	onsi	derir	ıg all	the	cases	5.		
6C.	Write a C++ program to swap two eleme	ents using re	ferer	nce v	ariał	oles					[5+3+2]	



Fig. Q.4A



Fig. Q.5A