(3 Hours) **[Total Marks: 80]**

N.B. : (1) Question No.1 is compulsory
(2) Attempt any three from the remaining
(3) Figures to the right indicate full marks
(4) Assume suitable data if necessary

1	Solve any **four** :-		**20**
	(a)	Define ADT with example.	
	(b)	Explain linear and non-linear data structures with examples.	
	(c)	Define traversal of binary tree? Explain different types of traversals of binary tree with examples.	
	(d)	What is the use of Huffman encoding?	
	(e)	Compare Singly and Doubly Linked list.	
2	(a)	Write a program to implement Stack using arrays.	**10**
	(b)	Give Huffman code for each symbol in "DATA STRUCTURE"	**10**
3	(a)	Write a C program to implement Singly linked list which supports the following operations: a) Creating a linked list b) Insert a node in the beginning c) Insert a node in the end	**10**
	(b)	Insert the following elements in an AVL search tree: 40, 23, 32, 84, 55, 88, 46, 71, 57	**10**
4	(a)	Write a program to implement queue using linked list.	**10**
	(b)	Write a program to create a Binary search tree. Show BST for the following: 10, 5, 4, 12, 15, 11, 3	**10**
5	(a)	Explain priority queue with example. Enlist various applications of queue.	**10**
	(b)	Construct binary tree for the preorder and inorder sequences Preorder: A B D G C E H I F Inorder: D G B A H E I C D F	**10**
6	(a)	Write a program for Depth First Search.	**10**
	(b)	Hash the following in a table of size 11. Use *any* collision resolution technique: 99, 67, 41, 0, 17, 2, 98, 20, 94, 27	**10**

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