(3 Hours)

Total Marks: 80

	(4)	Make s	uitable assur	npti	ons v	vhere	ver 1	iecess	ary.				2
Q.1	(a)	a) Compare linear and non-linear data structures.											
	(b)	Explain the advantage of circular queue over linear queue. Write a											
	(c)	function in C language to insert an element in circular queue. Define binary search tree. Discuss the case of deletion of a node in binary											
	(0)	search tree if node has both the children.											
	(d)	Write a C function to search a node in doubly linked-list.											
Q.2	(a)	Construct AVL tree for the following sequence: 67,34,90,22,45,11,2,78,37,122											
	(b)	Write algorithm for postfix evaluation. Demonstrate the same step by step for the expression: $967 * 2/$ -											
Q.3	(a)	Write a program to perform following operations on a circular linked list: i) insert a node from the end of the list, ii) delete first node, iii) count the number of nodes with even values. iv) display the list.											
	(b)	Write a C program to simulate linear queue as linked list.											
Q.4	(a)	Construct Huffman tree and find the Huffman codes for each symbol given below with frequency of occurrence:											
			Symbol	p		g		e (r	i	7		
			Frequency	2	20	17	רי ייכ	33 🗧	25	4)	NY.	
	(b) ⁄) Explain the various ways to represent graph in the memory with example.											
		Construct binary search tree from given traversal sequences:											
	(c)	Constr	uct binary sea	irch		-	6	С	F	G	-VT	Н	I
	(c)	Constr In-or	uct binary sea der traversal	D	E	B	A						0



- Q.6 (a) Construct a B tree of order 3 by inserting the following given elements as: [10] 77,97,75,64,53,14,26,49,82,59.
 Show the B tree at each step of insertion.
 - (b) Write a function in C for DFS traversal of graph. Explain DFS graph traversal with suitable example.

[10]

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