Q. P. Code: 22956

(3 hours) [80 marks]

N.B. (1) Question No 1 is compulsory.

(2) Attempt any three questions from remaining questions.

(3)Assume suitable data if necessary.

(4)Figure to right indicate full marks.

Q.1	a) What are linear and non-linear data structures.	2
	b) What is expression tree .Give examples.	3
	c) Define Graph. List its type with examples.	3
	d) Define Doubly-Ended queue and list the variants of Doubly Ended Queue.	3
	e) What do you mean by asymptotic notations? Explain with the help of example	3
	f) What is the depth, height and degree of a Binary tree.	3
	g) What is recursive function? Explain how it works using proper example.	3
Q.2	a)Write a program for implementing STACKS using Arrays.	10
	b)Write a program for INSERTION sort and comment on its complexity.	10
Q.3	a) Write a program to convert INFIX expression to POSTFIX Expression.	10
	b) Write a program for Implementing QUEUE using linked list.	10
Q.4	a)Write the algorithm for deletion of a node in a Binary Search Tree. Consider all cases.	10
	b)Explain Linear Search and Binary Search with an example.	10
Q.5	a) Write an algorithm for insertion and traversal in a circular linked list.	10
	b) Define AVL Tree? Create an AVL tree using the following sequence	10
	1,2,3,4,5,6,7,8,9,10 (Mention type of rotation for each case.)	
Q.6	Write short note on (**any four**)	20
	a) Graph traversal algorithms	
	b) Priority Queue.	
	c)Red- Black Trees.	
	d)B- Tree	
	e) Euclid's Algorithm	

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