Register No : _____

THE KAVERY ENGINEERING COLLEGE

(An Autonomous Institution)

B.E/B.TECH DEGREE END SEMESTER THEORY EXAMINATIONS, NOV /DEC 2024

Third Semester

Computer Science and Engineering

CS3301 – Data Structures

Regulations - 2021

Duration : 3 Hrs *Maximum : 100 Marks*

*PART – A (ANSWER ALL QUESTIONS) (Marks 10*2=20)*

Q.No	*Questions*	*BLT*	*CO*	*Marks*
1.	Explain the term data structure.	RE	1	2
2.	Difference between arrays and lists.	AN	1	2
3.	What are the various operations performed on the stack?	UN	2	2
4.	Write the postfix form for the expression -A+B-C+D?	AP	2	2
5.	What is the length of the path in a tree?	AP	3	2
6.	Define binary search tree.	UN	3	2
7.	Discuss about adjacency matrix?	UN	4	2
8.	Define indegree and out degree of a graph?	RE	4	2
9.	State the logic of selection sort algorithm.	AN	5	2
10.	What do you mean by hash function?	UN	5	2

*PART – B (ANSWER ALL QUESTIONS) (Marks 5*13 = 65)*

Q.No		*Questions*	*BLT*	*CO*	*Marks*
11.	a	What are the different types of data structure?	RE	1	13
		Or			
	b	Explain the insertion operation in linked list. How nodes are inserted after a specified node.	AP	1	13
12.	a	Explain the linked list implementation of stack ADT in detail?	UN	2	13
		Or			
	b i	Write the algorithm for converting infix expression to postfix (polish) expression?	AN	2	7
	ii	Discuss about priority queue ADT in detail?	AN	2	6
13.	a	Explain the tree traversal techniques with an example.	UN	3	13
		Or			

	b	i	Explain about B-Tree with suitable example.	AP	3	7
		ii	Explain the AVL tree insertion and deletion with suitable example.	AP	3	6
14.	a		Explain the various representation of graph with example in detail?	UN	4	13
			Or			
	b		Explain breadth first search algorithm with example?	UN	4	13
15.	a		Write an algorithm to implement bubble sort with suitable example.	AN	5	13
			Or			
	b		Write an algorithm for binary search with suitable example.	AN	5	13

*PART – C (Marks 1*15 = 15)*

Q.No		*Questions*	*BLT*	*CO*	*Marks*
16.	a	Define an efficient representation of two stacks in a given area of memory with n words and explain.	AP	2	15
		Or			
	b	Explain Re-hashing and Extendible hashing.	AN	5	15