

**PRAGATI ENGINEERING COLLEGE: SURAMPALEM
(AUTONOMOUS)**

II B.Tech I Semester Supplementary Examinations, June -2024

**DATA STRUCTURES
(ECE)**

Time: 3 hours

Max. Marks: 70

Answer ONE Question from each Unit

All Questions Carry Equal Marks

Q. No.	Questions	BTL	CO	Marks
UNIT – I				
1.	a) Sort the following numbers using Bubble sort 65,45,35,25,11,89	K3	CO1	7M
	b) Demonstrate about linear search with an example.	K3	CO1	7M
OR				
2.	a) Define Data Structure. List and explain operations on Data Structures.	K2	CO1	7M
	b) Demonstrate about binary search an example.	K3	CO1	7M
UNIT – II				
3.	a) Show how to insert a node at the beginning of the single linked list with an example.	K3	CO2	7M
	b) List different types of Linked lists. Write the advantages of single linked list.	K2	CO2	7M
OR				
4.	a) Write an algorithm to reverse all the nodes in the double linked list.	K2	CO2	7M
	b) Show how sparse matrix can be represented using linked list.	K2	CO2	7M
UNIT – III				
5.	a) Show how different operations can be performed on stack using arrays.	K3	CO3	7M
	b) Explain how post fix expression can be evaluated using stack with an example.	K3	CO3	7M
OR				
6.	a) List and explain the basic operations that can be performed on a Queue.	K3	CO3	7M
	b) List out the applications of stack and queue.	K2	CO3	7M
UNIT – IV				
7.	a) Define Tree. Show that how a Tree can be represented using arrays and Linked lists?	K2	CO4	7M
	b) Explain In-order, Pre-order and Post-order traversal of a Binary tree with example.	K2	CO4	7M
OR				
8.	a) Explain about how to perform insertion operation on Binary Search Tree.	K3	CO4	7M
	b) Illustrate about any 2 rotations in AVL trees with example.	K3	CO4	7M
UNIT – V				
9.	a) How graph can be represented using adjacency matrix? Explain with an example.	K2	CO5	7M
	b) Illustrate Kruskal's algorithm to find the minimum spanning tree of a Graph.	K3	CO5	7M
OR				
10.	a) Discuss about DFS graph traversal Technique with an example.	K3	CO5	7M
	b) Illustrate Prim's algorithm to find the minimum spanning tree of a Graph.	K3	CO5	7M