Department of Computer Science & Engineering

Subject Code:	**CSL36**	**TERM:**	Oct 2022 - Feb 2023
Subject Name:	**Data Structures Laboratory**	**Faculty In-charge:**	**SB/SJ/ML**
Credits:	**0:0:1**	**Semester:**	**III**

Sl. No.	Questions	CO	PO
1.	Write a C program to perform the following operations on Sparse Matrices a) Implement Simple Transpose (15 marks) b) Implement Fast Transpose (20 marks)	CO1	1,2 &3
2.	Write a C program to perform pattern matching using. a) Implement KMP pattern matching (20 marks) b) Implement n_find matching () (15 marks)	CO1	1,2 &3
3.	Write a C program to convert the given Infix expression to Postfix expression using stack a) Implement Stack operations (15 marks) b) Using stack perform infix to Postfix conversion (20 marks)	CO2	1,2 &3
4.	Write a C program to implement the following using stack Evaluation of Postfix expression a) Implement Stack operations (15 marks) b) Implement postfix evaluation function (20 marks)	CO2	1,2 &3
5.	Write a C program to perform the following operations for a circular queue implemented using dynamically allocated arrays. a) Write a function to Insert an item into circular queue (15 marks) b) Write a function to Delete an item from circular queue (10 marks) c) Write a function to Display the circular queue contents (10 marks)	CO1&2	1,2 &3
6.	Write a C program to implement stack using linked lists. a) Write a function to Push an item in stack (15 marks) b) Write a function to Pop an item from stack (10 marks) c) Write a function to Display stack contents (10 marks)	CO1&2	1,2 &3
7.	Write a C program to implement queues using linked lists. a) Write a function to Add an item in queue (15 marks)	CO2	1,2 &3

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	b) Write a function to Delete an item from queue (10 marks) c) Write a function to Display queue contents (10 marks)		
8.	Write a C program to add two polynomials using linked lists. a) Write a function to create Linked list to store two polynomials (20 marks) b) Write a function to Add two polynomials (15 marks)	CO2	1,2 &3
9.	Write a C program to perform following operations on doubly linked list. a) Write a function to insert a node/create a list (15 marks) b) Write a function to delete a node from a list (15 marks) c) Write a function to display the list (5 marks)		

10.	Write a C program for the following operations:
	a) Write a function to construct binary search tree. (20 marks)
	b) Write a function to perform Binary search tree traversal using: (15 marks)
	   i) In-order traversal
	   ii) Pre-order traversal
	   iii) Post-order traversal
		CO2&3	1,2 &3

11.	Write a C program to implement the following max heap operations: a) Write a function to Insert an item in max heap (15 marks) b) Write a function to Delete an item from heap (10 marks) c) Write a function to Display heap (10 marks)	CO2&3	1,2 &3
12.	Write a C program to implement the following operations over Graph: a) Write a function to construct a Graph (15 marks) b) Write a function to perform Depth First Search (10 marks) c) Write a function to perform Breadth First Search (10 marks)	CO2&3	1,2 &3

Marks Distribution

Conduction and Result	Write-up	Execution	Viva	Change of Program
	8M	35M	7M	-5M

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