Lab	Type	Practical
I.	**INTRODUCTION**	
LAB-1	A A A B	1. Write a program to calculate area of a Circle. 2. Write a program to find whether a number is odd or even. 3. Write a program to determine whether the entered character is vowel or not. 4. Write a program to determine whether a given number is prime or not.
LAB-2	A A B	5. Write a program to find factorial of a given number using loop. 6. Write a program to find power of a number using loop. 7. Write a program to find factors of a given number.
LAB-3	A A B B	8. Write a program to calculate the factorial of a given number (using recursion). 9. Write a program to calculate GCD of given two numbers (using recursion). 10. Write a program to calculate exp(x,y) (using recursion). 11. Write a program to print Fibonacci series (using recursion).
II.	**LINEAR DATA STRUCTURE : ARRAY**	
LAB-4	A A A B B	12. Write a program to read and display n numbers using an array. 13. Write a program to calculate sum of numbers from m to n. 14. Write a program to calculate average of first n numbers. 15. Write a program to find position of the smallest number from given n numbers. 16. Write a program to find whether the array contains a duplicate number or not.
LAB-5	A A B B	17. Write a program to insert a number at a given location in an array. 18. Write a program to delete a number from a given location in an array. 19. Write a program to insert a number in an array that is already sorted in an ascending order. 20. Write a program to delete a number from an array that is already sorted in an ascending order.
LAB-6	A A A B	21. Write a program to merge two unsorted arrays. 22. Write a program to read and display a 3X3 Matrix. 23. Write a program to calculate and display sum to two mXn matrices. 24. Write a program two multiply two matrices.
III.	**LINEAR DATA STRUCTURE : STACK**	
LAB-7	A	25. Write algorithms to perform following operations on a stack: i. Push ii. Pop

		iii. Peep iv. Change
	A	26. Take a stack of size 3 and performing following operations. Show the position of stack at each step: i. Push 1 ii. Push 2 iii. Push 3 iv. Push 4 v. Pop vi. Pop vii. Push 5 viii. Change 3rd element to 8 ix. Push 6 & 7 x. Traverse the stack
	B	27. Write a menu driven program to perform following operations on a stack: i. Push ii. Pop iii. Peep iv. Change
LAB-8	A	28. Show the process of reversing the list of given numbers {12, 34, 78, 23, 90, 67} using stack.
	B	29. Write a program to reverse the list of given numbers using stack.
LAB-9	A	30. Write an algorithm to convert an infix expression into its equivalent postfix expression.
	A	31. Convert the following infix expressions into postfix expressions: i. (A + B * C / D - E + F / G / (H + I)) ii. (A + B) * C + D / (B + A * C) + D
	A	32. Convert the following infix expressions into prefix expressions: i. A-B/(C*D^E) ii. (a + b ^ c ^ d) * (e + f / d)
	B	33. Write a program to convert an infix expression into its equivalent postfix expression.
LAB-10	A	34. Write an algorithm to evaluate given postfix expression.
	A	35. Evaluate the following expressions showing every status of stack in tabular form: i. 5, 4, 6, +, *, 4, 9, 3, /, +, * ii. 7, 5, 2, +, *, 4, 1, 1, +, /, -
	A	36. Write an algorithm to evaluate given prefix expression.
	A	37. Evaluate the following expressions showing every status of stack in tabular form:

		i. *, +, 6, 9, -, 3, 1 ii. +, -, *, 2, 2, 1, 16, 8, 5
	B	38. Write a program to evaluate given postfix expression.
	B	39. Write a program to evaluate given prefix expression.
IV.	**LINEAR DATA STRUCTURE : QUEUE**	
LAB-11	A	40. Write algorithms to perform following operations on a simple queue: i. Insert ii. Delete
	A	41. Perform following operations on queue with size 4 & draw queue after each operation : i. Insert ‘A’ ii. Insert ‘B’ iii. Insert ‘C’ iv. Delete v. Delete vi. Insert ‘D’ vii. Insert ‘E’
	B	42. Write a menu driven program to perform following operations on a simple queue: i. Insert ii. Delete iii. Display
LAB-12	A	43. Write algorithms to perform following operations on a circular queue: i. Insert ii. Delete
	A	44. Consider the following circular queue having 6 memory cells. Front=2, Rear=4 **Queue: _, A, C, D, _, _.** Describe queue as following operation take place: i. F is added to the queue ii. Two letters are deleted iii. R is added to the queue iv. S is added to the queue v. One letter is deleted
	B	45. Write a menu driven program to perform following operations on a circular queue: i) Insert ii) Delete iii) Display
V.	**LINEAR DATA STRUCTURE : LINKED LIST**	

LAB-13	A	46. Explain following functions for dynamic memory allocation: i. Malloc() ii. Calloc() iii. Realloc() iv. Free()
	A	47. Write a program to get n elements of an array from user and print those elements using pointer.
	B	48. Write a program to display n elements and sum of those elements using dynamic memory allocation. Also release the memory occupied after displaying.
LAB-14	A	49. Implement a program to create a node for singly linked list. Read the data in a node then print the node and release the memory of the node.
LAB-15	A	50. Write algorithms to implement following operations on the singly linked list: i. Insert a node at the end of the list ii. Insert a node at the beginning of the list iii. Delete the first node iv. Delete the last node v. Display the list
	B	51. Write a menu driven program to implement following operations on the singly linked list. i. Insert a node at the end of the list ii. Insert a node at the beginning of the list iii. Delete the first node iv. Delete the last node v. Display the list