

**Course Code** : **BCSL-033**  
**Course Title** : **Data and File Structures Lab**  
**Assignment Number** : **BCA(III)/L-033/Assignment/2024-25**  
**Maximum Marks** : **100**  
**Weightage** : **25%**  
**Last Dates for Submission** : **31<sup>st</sup>October,2024(for July Session)**  
**30<sup>th</sup>April, 2025(for January Session)**

**There are 8 questions of 10 marks each in this assignment carrying a total of 80 marks. Rest 20 marks are for viva voce. Please go through the guidelines regarding assignments given in the Programme Guide for the format of the presentation. Write all the programs in ‘C’ language.**

- Q1.** Write a program to take input of a Matrix using array and display its transpose. **(10 Marks)**
- Q2.** Write a program in ‘C’ Language to accept 10 strings as input and print them in lexicographic order **(10 Marks)**
- Q3.** Write a program to implement singly linked list for user inputs and perform the following operations on it:  
(i) Reverse the linked list and display it.  
(ii) Sort the nodes in ascending order and display them. **(10 Marks)**
- Q4.** Write a program using linked list that accepts two polynomials as input and displays the resultant polynomial after performing the multiplication of the input polynomials. **(10 Marks)**
- Q5.** Write a program to implement doubly linked list of integers as user inputs and perform the following operations:  
(i) Calculate and display the sum of all the even integers of the doubly linked list  
(ii) Insert new elements at the beginning, in the middle and at the end of the linked list **(10 Marks)**
- Q6.** Write a program in C to sort user input data using bubble sort method. Also, print the number of swaps and comparison operations performed for sorting the given data set. **(10 Marks)**
- Q7.** Write a program to convert an infix expression to a prefix expression. Use appropriate data structure. **(10 Marks)**
- Q8.** Write a program in ‘C’ language for the creation of a Red Black tree. Also, implement insertion and deletion operations. **(10 Marks)**