BABU BANARASI DAS UNIVERSITY, LUCKNOW

School of Engineering

Department of Computer Science and Engineering

Odd Semester, Session-2025-26

ASSIGNMENT NO– 3

BRANCH:- CSE AI **Year/Section:-2nd/CSE AI2G/AI2H**

SUBJECT:-DATA STRUCTURE USING 'C' **SUBJECT CODE:- NCS 4302**

Note:- Attempt any 5 questions in brief:

S. No.	Questions	Course Outcome	Blooms Taxonomy Level
1.	**Q1. a).** Explain the advantages of linked list over arrays. **b).** Write and explain the algorithm for create and traverse operations in singly linked list with example.	**CO 2**	**K2**
2.	**Q2.** Differentiate between singly and doubly linked list? Write and explain the algorithm for insert and create operations in doubly linked list with example.	**CO 2**	**K4**
3.	**Q3.a).** Explain the circular linked list in detail. **b).**Write an algorithm for insert a node at desired position and delete a node at beginning in singly linked list.	**CO 2**	**K2, K4**
4.	**Q4.a).** Explain Garbage collection & compaction in link list. **b).** What is Circular Queue. Explain Two way header list.	**CO 2**	**K2**
5.	**Q5.**What is stack? Solve the following expression using stack. (i). ((A - (B + C) * D) / (E + F)) **[Infix to postfix]** (ii). (A + B) + *C - (D - E) ^ F **[Infix to prefix]** (iii). 712 + *154 - / - **[Evaluate the given postfix expressions]**	**CO 2**	**K4**
6.	**Q6.** What is Doubly link list? Write an algorithm or C program: (i). To delete an element from intermediate doubly link list. (ii). To delete a node from end position in doubly link list.	**CO 2**	**K5**