Department of Computer Science and Engineering,
Anna University, Chennai- 600025
CS23302 – Data Structures and Algorithms
Practical
July – November 2026
Year/Sem/Batch : II/III/ N

Exercise: 03	Stack using Linked List and Queue Using Arrays	17 – Jul - 2026

Observation (5 Marks)

1. What is linked list?
2. Name the types of linked lists.
3. What is the difference between a singly linked list and a doubly linked list?
4. Define the following terms
    a. node
    b. head
    c. Tail
    d.Sentinel node
5. Differentiate the following
    a. linked list and an array
    c. insertion in a singly linked list and a doubly linked list
    d. circular linked list and a normal linked list.
6. How can you detect a cycle in a linked list?
7. What is the advantage of a linked list over an array?
8. What is the drawback of using a linked list?
9. What are the applications of linked lists?
10. How do you represent a linked list in memory?

Execution (15 Marks)

1. Write a menu driven program to implement singly linked list with the following options

a. insert
b. delete
c. display
d. exit

Briefly give the answers for the following questions

(i) How many modifications are required to delete a node at the beginning?

(ii) How many modifications are required to insert a node in the middle of the linked list?

2. Implement stack operations push, pop, display using linked list

Briefly give the answers for the following questions

(i) If the elements "A", "B", "C" and "D" are placed in a stack and are deleted one at a time, what is the order of removal?

(ii) What is the top of stack?

3. Write a program that extracts students from two different sections and arrange them in separate circles of boys and girls. The scenario is better explained in the diagram.

