भारतीय सूचना प्रौद्योगिकी संस्थान भागलपुर
INDIAN INSTITUTE OF INFORMATION TECHNOLOGY BHAGALPUR
(An Institute of National Importance under Act of Parliament)

Department of Computer Science and Engineering

Branch: B. Tech (CSE/ECE/MAE/MNC) **Semester: 2nd**
Course Name: Data Structure **Course Code: CS116**
Maximum Time: 2 hours **Date: 20th /21st Jan, 2025**

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1. Implement the Doubly linked list (DLL) using structure, where each node is dynamically allocated from the user side.
2. Implement the Circular single linked list (CSLL) using structure, where each node is dynamically allocated from the user side. (CSLL=SLL+ last_node>next=head)
3. Perform the various operations on DLL, and CSLL such as:
    a. Traversing the entire linked list and print the data elements of linked list
    b. Identify the length of linked list
    c. Perform insertion operation at the beginning, at the end, at middle, at the given specific position, and after the given position.
    d. Perform deletion operation at the beginning, at the end, at middle, at the given specific position, and after the given position.
    e. Sort the elements of the linked list in ascending and descending order.
    f. Identify the duplicate elements that is present in the linked list.
    g. Count total number of even and odd elements that is stored in linked list.