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Daffodil International University

Department of Computer Science and Engineering

Faculty of Science & Information Technology

Midterm Examination, Spring 2024

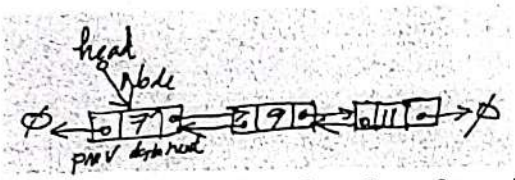
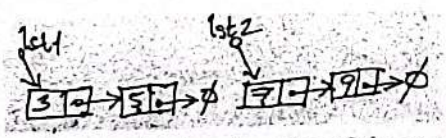
Course Code: CSE123, Course Title: Data Structures

Level:1 Term:2 Batch: ALL

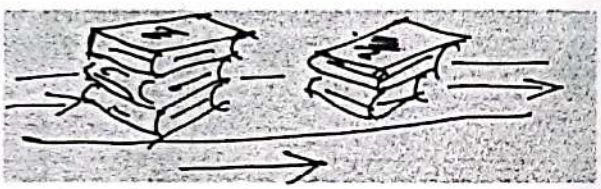
Time: 1.5 Hours **Marks: 25**

Answer ALL Questions

[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

1.		Consider the following figure of a doubly link list:  The *Node* shown above has *data* of type integer and *prev* and *next* as pointer of the same type. **Answer the following questions:** (A) Define the node and write required code to implement the scheme shown in the above figure. (B) Suppose a new node having data 11 is to be inserted after the node having "7". Draw the connection scheme for the new node and write the required code to insert in this doubly link list shown. (C) Suppose you need to delete the node having data 11. Show the deletion operation with required code. (D) Why doubly link list is useful for computing.	4 3 3 2	CO2 CO2 CO2 CO1
2.		Consider the following figure of two link list *lst1* and *lst2*:  Write required code using C language to join this two list to make a third list named *lst3*.	3	CO2

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3.	(A)	Consider the following infix expressions: a) 2^2+6/3-2*3 b) A/2-3+2*A (A) Convert the above infix expressions into postfix expression and evaluate using Stack. During the process demonstrate each of the stack content both for conversion and evaluation. (B) Consider the following process diagram:  Based on your understanding of the above business scenario, where books are in the packing flow, propose data structure to use to simulate the above business scenario. Please feel free to do necessary assumptions to justify your answer.	5 5	CO2 CO2

Good Luck