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PRESIDENCY UNIVERSITY

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Bengaluru

Mid Term Examinations - October 2026

Date: 07/10/2026 **Time:** 09:30 AM - 11:00 AM

Course Code: CSE2253 **Course Name:** Data Structures

Semester: Third Semester **Max. Marks:** 50 **Weightage:** 50%

CO - Levels	CO1	CO2
Marks	90	90

PART A: Answer Following Questions. 10 M

Q.N.	Questions	M	CO	BT
1	Explain the purpose of the FRONT and REAR pointers in a queue.	2	CO1	BT2
2	Explain the access principles of a stack and a queue.	2	CO1	BT2
3	Illustrate search operation to locate a specified element in a singly linked list.	2	CO2	BT3
4	Explain general structure of double linked list	2	CO2	BT3
5	Describe representation of circular single linked list.	2	CO2	BT3

PART B : Answer Any 1 Following Questions. 10 M

Q.N.	Questions	M	CO	BT
6	Explain the concept of a stack and describe its representation, basic operations, and implementation using an array.	10	CO1	BT2
7	Explain the concept of a queue and describe its representation, basic operations, and array implementation.	10	CO1	BT2

PART C: Answer Any 1 Following Questions. 10 M

Q.N.	Questions	M	CO	BT
8	Write an algorithm to convert an infix expression to postfix expression using a stack. Illustrate the procedure with the expression (A+B)*C	10	CO1	BT3
9	Illustrate with an example different types of queues and its applications.	10	CO1	BT2

PART D: Answer Any 1 Following Questions. 10 M

Q.N.	Questions	M	CO	BT
10	Illustrate insertion operation in a singly linked list, insertion at the beginning, end, and a specified position with suitable algorithm or pseudocode.	10	CO2	BT3
11	Illustrate recursion to calculate the factorial of a given number and trace its execution using suitable pseudocode.	10	CO2	BT3

PART E: Answer Any 1 Following Questions. 10 M

Q.N.	Questions	M	CO	BT
12	Illustrate deletion at the beginning, end, and a specified position in a doubly linked list using suitable algorithms or pseudocode.	10	CO2	BT3

13	A music player maintains songs S1, S2, S3, S4 and S5 in a Circular Linked List and continuously plays them in sequence. During playback, S3 is removed from the playlist after it has been played. Apply suitable Circular Linked List operations to update the playlist and determine the sequence of songs played in the next two rounds.	10	CO2	BT3