



# PRESIDENCY UNIVERSITY

BENGALURU

Roll No.															
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## Mid - Term Examinations - MARCH 2026

Date: 11-03- 2026

Time: 09:30am - 11:00am

<b>School:</b> SOIS	<b>Program:</b> BCA		
<b>Course Code:</b> CSA2500	<b>Course Name:</b> Data Structures		
<b>Semester:</b> II	<b>Max Marks:</b> 50	<b>Weightage:</b> 25%	

CO - Levels	C01	C02	C03	C04	C05
Marks	24	26	-	-	-

### Instructions:

- (i) Read all questions carefully and answer accordingly.
- (ii) Do not write anything on the question paper other than roll number.

### Part A

Answer ALL the Questions. Each question carries 2marks.

5Q x 2M=10M

1	A linear queue has size of 6 and has 4 elements 11, 30, 41, 77 where F=0 and R=3. After inserting 50 and 60, what is the value of F and R. Trying to insert 100, at this stage what happens?	2 Marks	L3	C01
2	Differentiate between PUSH AND POP operations of stack.	2 Marks	L2	C01
3	Differentiate between recursion and iteration.	2 Marks	L2	C02
4	Explain general structure of a singly linked list node.	2 Marks	L2	C02
5	Discuss one advantage of a circular linked list over a singly linked list.	2 Marks	L2	C02

## Part B

Answer the Questions.

Total Marks 40M

6.	a.	Explain different types of queues along with the suitable diagram.	10 Marks	L2	C01
<b>Or</b>					
7.	a.	Explain different types of arrays and how arrays are initialized and accessed.	10 Marks	L2	C01

8.	a.	Write an algorithm to implement Enqueue and Dequeue operations in a queue.	10 Marks	L3	C01
<b>Or</b>					
9.	a.	Write an algorithm to implement Push and Pop operations in a stack.	10 Marks	L3	C01

10.	a.	Write an algorithm to insert a node in the singly linked list with help of a suitable diagram.	10 Marks	L3	C02
<b>Or</b>					
11.	a.	Write an algorithm to delete a node from the circular linked list with help of a suitable diagram.	10 Marks	L3	C02

12.	a.	Explain the concept of recursion and the recursive process with help of the suitable programming example.	10 Marks	L2	C02
<b>Or</b>					
13.	a.	Discuss the applications of linked list. Also compare circular linked list with singly linked list.	10 Marks	L2	C02