Roll No.												

PRESIDENCY UNIVERSITY

BENGALURU

Make-up Examinations – December 2025

Date: 05 – 01- 2026 **Time:** 01:00pm – 04:00pm

School: SOCSE	**Program:** CSE	
Course Code : CSE2001	**Course Name :** Data Structures and Algorithms	
Semester: MK	**Max Marks**: 100	**Weightage**: 50%

CO - Levels	CO1	CO2	CO3	CO4	CO5
Marks	20	20	20	20	20

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. **10Q x 2M=20M**

1	Classify data structures and mention a few examples.	**2 Marks**	**L2**	**CO1**
2	Explain stack underflow and overflow conditions.	**2 Marks**	**L2**	**CO1**
3	Infer the logic behind circular queue overflow.	**2 Marks**	**L2**	**CO1**
4	Explain the disadvantages of a linked list.	**2 Marks**	**L2**	**CO1**
5	Define recursion and explain with Example.	**2 Marks**	**L2**	**CO1**
6	Describe the following terminologies a. Node b. Root c. Edge d. Path	**2 Marks**	**L2**	**CO1**

7	Describe the following terminologies a. Sibling b. leaf c. Degree of node d. Subtree	**2 Marks**	**L2**	**CO1**
8	Outline the design strategies of algorithms	**2 Marks**	**L2**	**CO1**
9	Explain the concept of order of growth	**2 Marks**	**L2**	**CO1**
10	Explain the concept of Average case with an example	**2 Marks**	**L2**	**CO1**

Part B

Answer the Questions **Total 80 Marks.**

11.	**a.**	Apply a code snippet to demonstrate the push and pop operation in a stack.	**10 Marks**	**L3**	**CO2**
	b.	Construct the postfix conversion for the following infix expression: ((A + B) – C * (D / E)) + F.	**10 Marks**	**L3**	

Or

12.	**a.**	Apply a code snippet to demonstrate the Enqueue and Dequeue operation in a queue.	**10 Marks**	**L3**	**CO2**
	b.	Evaluate the following postfix expression using stack data structure: 6 2 3 * / 3 4 * + 3 2 * –	**10 Marks**	**L3**	

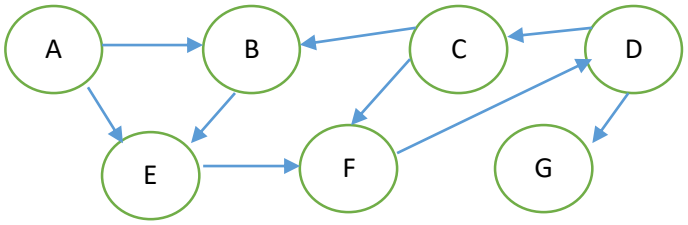
13.	**a.**	Develop a code snippet to insert a new node at the beginning of the linked list and the end of the linked list.	**10 Marks**	**L3**	**CO3**
	b.	Illustrate the Delete operations in the Circular linked list with suitable diagrams. (Beginning, End, Pos)	**10 Marks**	**L3**	

Or

14.	**a.**	Develop a code snippet to delete a node at the beginning and end of the linked list.	**10 Marks**	**L3**	**CO3**
	b.	Illustrate the Insertion operation in the Circular linked list with suitable diagrams. (Beginning, End, Pos)	**10 Marks**	**L3**	

15.	**a.**	Construct the Binary search tree using the following elements 100, 50, 150, 200, 210, 34, 45, 78, 98, 67, 125,130 and Perform In-order, Pre-order and Post-order traversal on constructed tree	**10 Marks**	**L3**	**CO4**
	b.	Develop code segment for the following operations in DLL a. Insertion of a new node in the beginning b. Deletion of node at the End	**10 Marks**	**L3**	

Or

16.	**a.**	Construct the adjacency Matrix and set for the following graph. 	**10 Marks**	**L3**	**CO4**
	b.	Develop code segment for the following operations in DLL a. Insertion of a new node at the End b. Deletion of the node in the beginning	**10 Marks**	**L3**	

17.	**a.**	Develop a code snippet to implement the Linnear search algorithm and mention the time complexity	**10 Marks**	**L3**	**CO5**
	b.	Develop a code snippet to implement the Insertion Sort algorithm and mention the time complexity	**10 Marks**	**L3**	

Or

18.	**a.**	Develop a code snippet to implement the Binary search algorithm and mention the time complexity	**10 Marks**	**L3**	**CO5**
	b.	Develop a code snippet to implement the Selection Sort algorithm and mention the time complexity	**10 Marks**	**L3**	

******* BEST WISHES *******