

QP Code: D133840		Total Pages: 1	Name:
		Register No.	
THIRD SEMESTER UG DEGREE EXAMINATION, NOVEMBER 2025			
(CUFYUGP)			
ITY3CJ202/ITY3MN200 - DATA STRUCTURES AND ALGORITHMS			
2024 Admission onwards			
Maximum Time: 2 Hours		Maximum Marks: 70	
Section A			
All Questions can be answered. Each Question carries 3 marks (Ceiling: 24 Marks)			
1	Explain operations performed on a data structure.		
2	Differentiate between arrays and linked lists.		
3	Explain types of multi-dimensional arrays.		
4	Write the algorithm for traversal in a 1-D array.		
5	Define circular linked list.		
6	Explain deletion operation in a singly linked list.		
7	Explain applications of stack in recursion.		
8	Convert the infix expression $A*(B+C)/D$ to postfix.		
9	Explain queue operations with example.		
10	Write the advantages of using linked list implementation for queue.		
Section B			
All Questions can be answered. Each Question carries 6 marks (Ceiling: 36 Marks)			
11	Explain the applications of data structures in real-time scenarios.		
12	Explain insertion and deletion in a singly linked list with example.		
13	Implement stack using linked list with algorithms.		
14	Explain circular queue with array implementation.		
15	Explain full and complete binary tree with examples.		
16	Demonstrate non-recursive inorder traversal of a binary tree.		
17	Explain types of graphs with examples.		
18	Demonstrate bubble sort on [5, 1, 4, 2, 8].		
Section C			
Answer any ONE. Each Question carries 10 marks (1x10=10 Marks)			
19	Explain hashing and hash functions: division method, multiplication method, mid-square method, and folding method.		
20	Explain merge sort with a stepwise example using [38, 27, 43, 3, 9, 82, 10].		