SHRI MATA VAISHNO DEVI UNIVERSITY, KATRA
School of Computer Science & Engineering
B. Tech. (CSE) Minor-I Examination (Even Semester) 2023-2024

Entry No: 2 3 b c s 0 1 0

Date: 29.02.2024

Total Number of Pages: [01]

Total Number of Questions: [04]

Course Title: Data Structure using C

Course Code: CSL 2031

Time Allowed: 1.0 Hours

Max Marks: [20]

Instructions / NOTE

i. Attempt All Questions.
ii. Support your answer with neat freehand sketches/diagrams, wherever appropriate.
iii. Assume an appropriate data / information, wherever necessary / missing.

	Section – A		
Q1.	**(a)** Are linked lists considered linear or non-linear Data Structures? Justify your answer.	[02]	CO2
	(b) Write the conditions for underflow and overflow. State when and why do we apply these conditions	[02]	CO2
Q2.	**Answer the following**		
	(a) Convert the following Infix notation into Postfix notation using inspection by hand method and Show status of stack for each scanned token: **(A / 5 * B + (C / 2 * D))**	[03]	CO1
	(b) Write the code segment to search for an element in an array using binary search technique. Also declare and initialize all the required variables.	[03]	CO3
	Section – B		
Q3.	Write the function to sort an array using insertion sort.	[04]	CO3
Q4.	Write a program to reverse a string using a stack. Calculate the time and space complexity of your program.	[06]	CO4

Course Outcomes

CO1. Select appropriate data structure as applied to specified problem definition.
CO2. Understand basic data structures such as arrays, linked lists, stacks and queues.
CO3. Apply Algorithm for solving problems like sorting, searching, insertion and deletion of data
CO4. Demonstrate a thorough understanding of how data structures impact the performance of algorithms

CO	Questions Mapping	Total Marks	Total Number of Students (to be appeared in Exam)
CO1	2(a)	03	
CO2	1(a), 1(b)	04	
CO3	2(b), 3	07	
CO4	4	06	