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

Entry No: | 2 | 3 | b | c | s | 0 | 1 | 0 |

Total Number of Pages: [01]

Date: 19.04.2024

Total Number of Questions: [04]

Course Title: Data Structure

Course Code: CSL DC 104

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)** What do mean by self-referential data structure? State advantage of using self-referential data structure.	**[02]**	**CO2**
	(b) Define the structure for a linked list to represent a polynomial of following type? $2x^3y^3 - 8x^2y^2 + 10xy + 28$.	**[02]**	**CO1**
	(c) State the code for accessing the information of the third item using HEAD pointer in a linked list?	**[02]**	**CO1**
Q2	State the difference between Header grounded doubly linked list and Header circular doubly linked list. Provide code segments to state the difference wherever required.	**[04]**	**CO2**
	Section – B		
Q3.	Write a GetNth() function that takes a pointer to circular linked list and an integer index and returns the data value stored in the node at that index position. NOTE: GetNth() should use the C numbering convention that the first node is index 0, the second is index 1, ... and so on. The index should be in the range [0..length-1]. If it is not, GetNth() should implement some other error case.	**[05]**	**CO3**
Q4.	Given a list pointed by HEAD, write a function Splithalf() to split it into two sublists — one for the front half, and one for the back half. If the number of elements is odd, the extra element should go in the front list. Example: Splithalf() on the list {2, 3, 5, 7, 11} should yield the two lists {2, 3, 5} and {7, 11}.	**[05]**	**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			
CO2			
CO3			
CO4			