VIT
Vellore Institute of Technology

School of Computer Science and Engineering

Fall Semester 2023-24

Continuous Assessment Test – 1

SLOT: G1+TG1

Programme Name & Branch: M.Tech(MID and MIC)

Course Name & Code: Data Structures and Algorithms & CSI 2002

Class Number (s): VL2023240104095, VL2023240104099, VL2023240104098

Faculty Name (s): Arup Ghosh, Joshuva Devadas T, N.S. Nithya

Exam Duration: 90 Min. **Maximum Marks: 50**

Q.No.	Question	Max Marks	CO	BL
1.	a) Write a program to accept & display n Students information and extract highest grade student using Union.	7	CO1	BL1
	b) Compare Static and Dynamic Memory Storage.	3		
2.	a) Write a C program to find the length of a string using pointer.	4		
	b) Apply Master Theorem and iteration method for solving the following recurrence relation. $T(n) = 2T(n/2) + n$ if $T(1)=1$	6	CO2	BL3
3.	Illustrate the Asymptotic Notations with suitable example	10	CO2	BL1
4.	Evaluate the given postfix notation using stack and write an algorithm for postfix evaluation. Show the various steps involved to obtain the result by mentioning stack trace in table format. 8 2 3 ^ / 2 3 * + 5 1 * -	10	CO3	BL3
5.	Assume that the operation ENQUEUE (CQ, x) inserts an item x into a circular queue CQ and another operation DEQUEUE (CQ) deletes an item from CQ in FIFO manner. Draw the circular queue of size 6. Illustrate the working for the following eight commands (in the given order) over that circular queue with a neat diagram. Also give the values of the variables FRONT and REAR on execution of each command; (i) ENQUEUE (CQ, 5); (ii) ENQUEUE (CQ, 10); (iii) ENQUEUE (CQ, 15); (iv) DEQUEUE (CQ);	10	CO3	BL3