



**VIT**  
Vellore Institute of Technology  
(Approved to be University under section 3 of UGE Act 1956)

## School of Computer Science and Engineering

Fall Semester 2023-24

Continuous Assessment Test – 1

SLOT:G2+TG2

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

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

Class Number (s): VL2023240104093, VL2023240104097

Faculty Name (s): Adaline Suji R, N.S. Nithya

Exam Duration: 90 Min.

Maximum Marks: 50

Q.No.	Question	Max Marks	CO	BL
1.	a) Engrave a C code to create a structure for student information such as roll_no, stud_name, mark1, mark2, mark3. Calculate total marks and average marks.  b) List out any three applications of data structures.	7  3	CO1	BL1
2.	a) Write a C program to input two matrices from user and find sum of both matrices using pointers.  b) Discuss three cases of running time for an algorithm.	6  4	CO2	BL3
3.	a) Solve the following recurrence relation using Iteration method. $T(n) = 3T(n/4) + n^2$ , if $n > 1$ $T(1) = 0$ , if $n = 1$  b) Solve the following recurrence relation using Master Theorem. $T(n) = 2T(n/2) + n \log n$	5  5	CO2	BL3

$n^2 \log n$