

**VIT**Vellore Institute of Technology
Chennai 600 025

23BBS0025

School of Computer Science and Engineering**Fall Semester 2023-24****Continuous Assessment Test – 2****SLOT: AI+TA1**

Course Name & Code : Programming in C & CSE1008
Programme Name : BTech-BBS
Branch : Computer Science and Engineering and Business Systems
Class Number (s) : VL2023240107110 & VL2023240107108
Faculty Name (s) : Dr. A. Viswanathan & Sivanesan S
Exam Duration : 90 Min.

Maximum Marks: 50**Answer All Questions**

Qno.	Question	Max Marks	CO	BL
1.	Discover and defend the use of arrays in problem-solving strategies. Illustrate the structure of 3D & 4D arrays and Use a sample array of integers to demonstrate how each element in a 6D array is stored in RAM. Demonstrate the exact output of the following C-program. If the result is not as expected, make the necessary changes to achieve the desired result, and then justify your answers:- <pre>#include <stdio.h> int main(){ int a[4][2][2], i, j, k; for (int i = 0; i < 4; i++) { for (int j = 0; j < 3; j++) { for (int k = 0; k < 4; k++) { printf("Enter a[%d][%d][%d] : ", i + 1, k + 1, j + 1); scanf("%d", a[i][j][k]); } } printf("\n All the elements of matrix : \n"); for (i = 0; i < 4; ++i) { for (j = 0; j < 2; ++j) { for (k = 0; k < 4; ++k) { printf("a[%d][%d][%d] : %d\n", i + 1, j + 1, i + 1, a[i][j][k]); } } } }</pre>	10	CO2	BL4

2.	Investigate meticulously the structure and operation of the following techniques using appropriate "C" program:- • Call by Reference • Call by value Find out the pros and cons as well as suggest two best usage scenarios for the above mentioned techniques.	10	CO3	BL2
3.	Classify different type of functions based on arguments and return type and recommend suitable problems where such functions could be used. Develop a C program using function (with argument and return type) to get the date of birth (Ex.:15102023) from the user and print both date of birth (Ex.:15/10/2023) and the complete age in terms of number of years, months and days.	10	CO3	BL3
4.	Construct a C program to multiply any two non-square matrices as per the following specifications:- • Using pointers • Create a function for getting input elements for matrix • Design a display function to display both input matrices and resultant matrix • Make separate function for multiplication • User may enter any valuse for matrix dimensions	10	CO4	BL3
5.	Make a comprehensive C program to demonstrate the following concepts:- • Pointer declaration and access • Pointer and 3D array access Design a C program to perform the following operations: • Get a 6X6 matrix of random numbers between (1 to 9) • Divide the 6X6 matrix into sub-matrices of size 3X2 • Print the original matrix and sub-matrices	10	CO4	BL4