Reg.No: ☐☐☐☐☐☐☐☐

**SNS College of Technology, Coimbatore-35.**
**(Autonomous)**
**B.E/B.Tech- Internal Assessment -III**
**Academic Year 2023-2024(ODD)**
**First Semester**

**B**

## 23CST101 –PROBLEM SOLVING AND C PROGRAMMING
**[Common to CSE, IT, AI/ML, EEE]**

Time: 1¹ᐟ² Hours                                       Maximum Marks: 50

### Answer All Questions

### PART-A (5 x 2 = 10 Marks)

| | | | |
|---|---|---|---|
| 1. | Define function. | CO4 | Und |
| 2. | What is the use of recursive function? | CO4 | App |
| 3. | Why the pointer is a more efficient than data types? Justify your answer. | CO4 | Ana |
| 4. | Define Structure and how a structure element can be accessed? | CO5 | Und |
| 5. | List out the types of preprocessor directives. | CO5 | Und |

### PART–B (13 X 2 = 26 Marks)

| | | | | | |
|---|---|---|---|---|---|
| 6. | (a) | (i) Compute the factorial of a given number using recursion. | 6 | CO4 | App |
| | | (ii) Write a C program for swapping 2 numbers using call by value and call by reference. | 7 | CO4 | App |

OR

| | | | | | |
|---|---|---|---|---|---|
| | (b) | (i)Write a C program to perform different arithmetic operations using pointers. | 6 | CO4 | App |
| | | (ii)Write a program to show the effect of increment on pointer variables. Display the memory locations of a integer, a character, and a floating pointer numbers before and after increment of pointers. | 7 | CO4 | App |

7. (a) Explain briefly about file concept with example. 13 CO5 Und

OR

(b) (i) Distinguish between Structure and Union. 4 CO5 Rem

(ii) Illustrate the concept of union with your own example. 9 CO5 App

## PART–B (14 X 4 = 14 Marks)

8. (a) A College wants to create a Student Database by defining a Structure called Student and get the details of a student as student_regno, student_name, student_dept. Create another structure called date_of_birth with details as date, month, year. Develop a C program to display all the above Student Details using the concept Structure within Structures. 14 CO5 Ana

OR

(b) Explain briefly about function prototype and types of functions with example. 14 CO4 App

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**(Note: U-Understand     R-Remember     Ana-Analyze     App-Apply)**