D1ACS2504 **(2 Pages)** **Name.....**
Reg. No.....

FIRST SEMESTER M.Sc. DEGREE EXAMINATION, NOVEMBER 2025
(Regular/Improvement/Supplementary)

COMPUTER SCIENCE
FCSS1C04 – THE ART OF PROGRAMMING METHODOLOGY

Time: 3 Hours **Maximum Weightage: 30**

Section A: Short answer questions. Answer any *four* questions. Each carries *two* weightage.

1. What is the difference between a keyword and an identifier in C?
2. Differentiate between break and continue statements in terms of control flow.
3. What is recursion? Write one situation where recursion is preferred.
4. Compare call by value and call by reference in terms of memory efficiency and program behavior.
5. What is the difference between macro with arguments and a function in C?
6. Distinguish between compile-time polymorphism and run-time polymorphism in C++ with examples.
7. What is a pointer to a pointer? Give an example.

(4 × 2 = 8 weightage)

Section B: Short essay questions. Answer any *four* questions. Each carries *three* weightage.

8. Write a C statement using the conditional operator to find the minimum of two numbers.
9. Write a C program to count the number of vowels in a string.
10. Differentiate between storage classes auto, register, and static with examples.
11. Write a program to read and write data from a text file in C.
12. Giving an example, explain the difference between constructor and destructor in C++.
13. What is the difference between a null-terminated string and a character array in C?
14. Write a C function to compute the nth Fibonacci number using recursion.

(4 × 3 = 12 weightage)

(P.T.O.)

Section C: Essay questions. Answer any *two* questions. Each carries *five* weightage.

15. Explain the different steps in problem-solving using flowcharts and algorithms. Illustrate with a real-life problem.
16. Write a C program for string reversal without using built-in functions. Explain the logic in detail.
17. Differentiate between structures and unions. Discuss memory allocation and performance issues with examples.
18. Explain pointers in C. Illustrate with examples how pointers can be used to manipulate arrays and functions.

(2 × 5 = 10 weightage)