

FIRST SEMESTER EXAMINATION

Paper Code: <BCA-102> Programming in C

Maximum Marks: 40

Time: 2 Hours

COURSE OUTCOMES:

CO1: Understand the basics of the C programming language and its application.

CO2: Implement decision making, branching, and looping structures.

CO3: Manage large amounts of data using arrays and structures.

CO4: Discuss pointer-based solutions.

CO5: Develop recursive functions for solving problems.

CO6: Discuss file management techniques in C.

Note: Attempt all questions. Internal choice is indicated. (Total: 40 Marks)

SECTION A

Q. No.	Questions	Marks	Unit No.	CO Mapped	Bloom's Level
Q1	Answer all parts (Short Notes / Conceptual):	10	1	CO1	2
(a)	Differentiate between a character set and tokens in C. Name any four tokens.	2	1	CO1	2
(b)	Define identifiers and state the fundamental rules for naming identifiers in C.	2	1	CO1	1
(c)	Explain the role of preprocessor directives (#include and #define) with suitable syntax.	2	1	CO1	2
(d)	Differentiate between an expression and a statement with clear examples.	2	1	CO1	2
(e)	Distinguish between constants and variables. How are symbolic constants declared?	2	1	CO1	2

SECTION B

Q. No.	Questions	Marks	Unit No.	CO Mapped	Bloom's Level
Q2.	Explain the essential structure of a C program with a neat diagram and code snippet. Also explain operator precedence and associativity with an illustrative evaluation example.	10	1	CO1	3
OR					
	Discuss fundamental data types in C with their size and range. Explain the scope, lifetime, and storage classes of variables with proper sample code.	10	1	CO1	2
Q3.	Develop a modular C program using nested loops to print a pyramid pattern of numbers (e.g., 1, 121, 12321). Ensure standard naming conventions, comments, and input validation.	10	2	CO2	3
OR					
	Explain the difference between bitwise, logical, and relational operators with examples. Write a recursive C program to compute the factorial of a user-entered integer.	10	2	CO2	3
Q4.	Define a structure in C to store student records (roll number, name, marks). Write a complete C program using an array of structures to display details of the student with the highest marks.	10	3	CO3	3
OR					
	Explain pointer arithmetic and dynamic memory allocation functions (malloc(), calloc(), free()). Write a program demonstrating file copy operations using file pointers.	10	4	CO4	3