BCA-1-01T: Computer Programming

Total Marks: 100
External Marks: 70
Internal Marks: 30
Credits: 4
Pass Percentage: 40%

INSTRUCTIONS FOR THE PAPER SETTER/EXAMINER

1. The syllabus prescribed should be strictly adhered to.
2. The question paper will consist of three sections: A, B, and C. Sections A and B will have four questions from the respective sections of the syllabus and will carry 10 marks each. The candidates will attempt two questions from each section.
3. Section C will have fifteen short answer questions covering the entire syllabus. Each question will carry 3 marks. Candidates will attempt any ten questions from this section.
4. The examiner shall give a clear instruction to the candidates to attempt questions only at one place and only once. Second or subsequent attempts, unless the earlier ones have been crossed out, shall not be evaluated.
5. The duration of each paper will be three hours.

INSTRUCTIONS FOR THE CANDIDATES

Candidates are required to attempt any two questions each from the sections A and B of the question paper and any ten short questions from Section C. They have to attempt questions only at one place and only once. Second or subsequent attempts, unless the earlier ones have been crossed out, shall not be evaluated.

Course: Computer Programming	
Course Code: BCA-1-01T	
Course Outcomes (COs)	
After the completion of this course, the students will be able to:	
CO1	Gain a solid understanding of the fundamental concepts of programming in the C language, including variables, data types, control structures (such as loops and conditional statements), functions, and arrays.
CO2	Develop the ability to solve problems using C programming constructs, including the design and implementation of algorithms.
CO3	Acquire practical programming skills in C, including writing, compiling, debugging, and testing C programs.
CO4	Understand and apply best practices for C programming, including code readability, documentation, and code reuse.
CO5	Learn how to read from and write to files using C, including concepts such as file pointers and file I/O operations.

SECTION-A

Unit I: **Introduction**: Evolution of C Language, Character Set in C, Tokens, Keywords, Identifier, Constants, Variables, Rules for defining Variables, Data Types in C Language: Basic data type, Derived data type and Enum data type.

Unit II: **Operators in C**: Types of Operator: Arithmetic, Relational, Logical, Comma, Conditional, Assignment, Operator Precedence and Associativity in C, Input and Output Statements, Assignment statements.

Unit III: Control Structure: Sequential Flow Statement, Conditional Flow Statement, Decision Control statements: if, if-else, nested-if, else-if ladder. Loop control statements: While, do-while, for loop, Nested of Loops. Case Control Statements: Switch Statement, goto Statement, Break Statement, Continue Statement.

Unit IV: **Arrays and Pointers in C:** Arrays, Characteristic of Arrays, Representation, Declaration and Initialization of an Array, Types of Arrays: one dimensional, multi-dimensional arrays. Pointer, Pointers Declaration and Initialization, Types of Pointers, Pointer Expressions and Pointer Arithmetic.

SECTION-B

Unit V: **Functions:** Function in C, Function Declaration and Definition, Types of Functions, Library Vs. User-defined Functions, Function Calling Methods, Function Parameters: Actual Parameter, Formal Parameter, Parameter Passing Techniques: Call by Value and Call by Reference, Recursive Function, Pointers and Functions. Strings: C Strings, Difference between char array and string literal, Traversing String, Accepting string as the input, Pointers with strings, String Functions.

Unit VI: Structures & Unions: Structure, Structure Variables Declaration, Accessing Structure Data Members, Array of Structures, Nested of Structure, Passing structure to function, Structures Limitations, Union, Difference between Structure and Union in C.

Unit VII: Character Arrays and Strings: Declaring and Initializing String Variables, Reading Strings from Terminal, Writing Strings to Screen, Arithmetic Operations on Characters, String-handling Functions, Example Programs (with and without using built-in string functions).

Unit VIII: File Management in C: Introduction, Defining and opening a file, closing a file, Input/output and Error Handling on Files.

Reference Books:

- E. Balagurusamy, "Programming in C", Tata McGraw Hill.

- Kamthane, "Programming with ANSI and Turbo C", Pearson Education

- Rajaraman,V, "Fundamentals of Computers", PHI

- Kanetkar, "Let Us C", BPB Publications.