MCA – 13: Introduction to Programming Language

Unit: 1   **[25%]**

Introduction to Programming:

What is programming?, Problem solving methods with examples-Algorithm and Flowchart, Types of Programming languages, Characteristics of higher level language, Some Programming languages

Overview of C:

Introduction, Importance of C, Sample C programs, Basic structure of C programs, Programming style, executing a C program.

Constants, Variables and data Types:

Introduction, Character Set, C tokens, Keywords and Identifiers, Constants, Variables, Data types, Declaration of Variables, Defining symbolic constants.

Operators and Expression:

Introduction, Arithmetic of Operators, Relational Operators, Logical Operators, Assignment Operators, Increment and Decrement Operators, Conditional Operators, Bit-wise Operators, Special Operators, Arithmetic Expressions, Evaluation of expressions, Precedence of arithmetic operators, Type conversions in expressions, Mathematical function.

Managing Input and Output Operators :

Introduction, reading a character, writing a character, Formatted input, Formatted output.

Unit: 2   **[30%]**

Decision Making Branching:

Introduction, Decision making with IF statement, Simple IF statement, the IF ELSE statement, Nesting of IF … ELSE statements, The ELSE IF ladder, The switch statement, the turnery (? :) Operator, the GOTO statement.

Decision Making Looping:

Introduction, the WHILE statement, the DO statement, The FOR statement, Jumps in loops Break and continue.

Array:

Introduction, One-dimensional arrays, Two-dimensional arrays, Initialization of two-dimensional arrays, Concept of Multimensional arrays.

Handling of Character strings:

Introduction, Declaring and initializing string variables, Reading string from terminal, Writing string to screen, Arithmetic operations on characters, Putting string together, String Operations : String Copy, String Compare, String Concatenation And String Length, String Handling functions, Table of strings.

Unit: 3   **[25%]**

User-Defined Functions :

Introduction, Need for user-defined functions, The form of C function, Return values and their types, Calling a function, category of functions, No arguments and no return values, Arguments with return values, Handling of non-integer functions, Nesting of functions, Recursion, Functions with arrays, The scope and Lifetime of variables in functions, Ansi C functions.

Structures and Unions:

Introduction, Structure definition, Giving values to members, Structure initialization, Comparison of structures, Arrays of structures, Arrays within structures, Structures within Structures, Structures and functions, Unions, Size of structures, Bit fields.

Unit: 4   **[20%]**

Pointers:

Introduction, Understanding pointers, Accessing the address of variable, Declaring and initializing pointers, Accessing a variable through its pointer, Pointer expressions, Pointer increments and scale factor, Pointers and arrays, Pointers and character strings, Pointers and Functions, Pointers and structures.

File Management in C :

Introduction, Defining files and its Operations, Error handling during I/O operations, Random access files, Command line arguments.
The Preprocessors:

Introduction, Macro Substitution, File inclusion, Compiler control directives

Text Book:

1.   Programming in ANSI C, Balaguruswamy, Tata McGraw-Hill

Reference Books:

1.   The Complete Reference, Herbert schildt Fourth Edition
2.   Programming in C Ansi standard, M.T.Savaliya, Atul Prakashan
3.   Let Us C , Yashwant Kanetkar, BPB Publications
4.   Programming with C, Gottfried, McGraw-Hill International.

Question Paper Scheme:
   Section – I
   Q.1 Objective Type Unit I&II (11) Marks
   Q.2 Unit – I OR Q.2 Unit – I (12) Marks
   Q.3 Unit – II OR Q.3 Unit–II (12) Marks

   Section – II
   Q.4 Objective Type Unit III&IV (11) Marks
   Q.5 Unit – III OR Q.2 Unit–III (12) Marks
   Q.6 Unit – IV OR Q.3 Unit–IV   (12) Marks