Programming Concepts in C/C++

# UNIT I

C programming language: Evolution, Features & Importance. Basic Structure of C programs, Character Set, Identifiers, Reserved Words, Data Types, Constants, Variables, Symbolic Constants, Casting and Standard Libraries. Logical and Control Structures: Assignment, Arithmetic, Relational, Logical, Compound, Increment, Decrement, Bitwise Operators & Special Operators. IF, IF – ELSE, Nested IF – ELSE, ?: , SWITCH CASE. Looping Constructs: FOR, WHILE, DO-WHILE, EXIT, BREAK, CONTINUE

# UNIT II

Arrays: Types of arrays, Initialization, dynamic arrays. Character Arrays & Strings. Stringhandling functions. Functions: Concepts, Elements, Prototypes & Types. Passing Arrays to Functions. Storage classes, Recursion. Command-line arguments. Multifile programming. Preprocessing. Pointers: Concepts, Variables, swapping data, swapping address v/s data, pointers & arrays,

# UNIT III

Pointers to pointers, pointer to strings, pointer arithmetic, additional operators, pointers to functions, void pointers. Structures and Unions: Syntax & use, members, structures & pointers, array of structures, structures & functions, structure within structures. OOPS: Evolution and need of C++, Advantages over Procedural programming. Introduction to classes and objects, Basic OOPS programming

# UNIT IV

C++ Functions: passing arguments to functions, returning values from functions, reference arguments, inline functions, default arguments, object as function argument, returning objects from functions. Constructors and Destructors, Copy Constructors Inheritance and Polymorphism: Inheritance and types, Polymorphism (static and dynamic), function overloading, function overriding, virtual functions & operator overloading.