Core Paper 3 :Semester –III

DSCC-3 Programming with C and C++

BLOCK – I: Fundamentals of C

Unit-1:Program Design: What is algorithm, examples of algorithm, flow charts, what is structured program, program design with flow charts, examples of flowcharts

Unit-2: **Evolution of C**: History of C, What is C, Why C Language, features of C Language, phases of execution of C Program, first C program with welcome message.

Unit-3:Basics of C: Character set, Identifiers and keywords, variables, Data types, constants, escape sequences, , statements, Operators in C, type casting and type conversion, type coercion, library functions, o input and output.

BLOCK-II: Contol Structures

Unit-4: Flow of control: Sequential flow of control, branching using if statement, if else, nested if and else if, switch statement, un-conditional branching using go to statements, for loop, while loop, do-while loop, comparison of three loops, break and continue, exit.

Unit-5: Functions: Functions with multiple arguments, , parameter passing mechanisms, s, recursive functions, Pre-processive directives

Unit-6: Pointers And Strings: Pointer arithmetic, Address manipulation using pointers, referencing and de-referencing, multiple referencing, punters as argument to functions, Strings: creating stings**,** string operations- copying, concatenation, insertion, substring, padding,

BLOCK-III- Derived Data Types

Unit-7: **Arrays:** One dimensional array, two dimensional arrays, multi dimensional arrays, Matrix operations using arrays, arrays as arguments to functions, pointers and arrays, storage classes in C

Unit-8: Structures and unions: Creating structure, arrays and structures, functions and structures, pointers and structures, unions, arrays and unions, pointers and unions, macros in C++

Unit-9 : Files : Files creating, opening and reading, writing data onto file, copying file to another file, appending one file to another, manipulation of data using byte code, sorting the file contents,

BLOCK-IV Introduction to C++

Unit-10 : Classes and objects: Oops and C++, input and output statements in C++, Access Specifier: private, public, protected, constructors, destructors, garbage management in C++

Unit-11:Inheritance: Abstract class, base class, derived class, multiple inheritance, multi-level inheritance, conflict resolution in inheritance, this operator, friend classes, static data members, static methods

Unit-12 : **Polymorphism**: Virtual functions, , operator overloading, templates in C++

PRACTICALS:

List of Programs in C

1. Write a C program to print ASCII codes of all the printable characters & print variables of all data types using format string character (%d, %c, %f etc..)
2. Write a C programs to print all escape sequence character like(\n,\t,\b etc..) & print pyramid shape using stars
3. Write a C program to demonstrate all the operators in C
4. Write a C program to demonstrate bitwise operators
5. Write a C program to print given number into words
6. Write a C program to print number of ovals , consonants, blank spaces, special characters and total number of characters in given string using switch and loops
7. Write recursive and non-recursive function to find factorial of given number
8. Write a C program to find Fibonacci series up to a given number using recursive and non recursive function
9. Write a C program to reverse the elements in the array using functions,pointers,arrays
10. Write a C program to perform matrix operations (print,read, addition,multification, transpose) using arrays ,pointers, and , functions
11. Write a C program to read, print the data of all the students in your class using arrays ,structures, unions, functions
12. Write a C program to demonstrate pre- processive directives .