

UNIT 1: INTRODUCTION TO OOPS AND C++

Object oriented programming paradigm – Basic concepts of object oriented programming – Benefits of OOP – A simple C++ program - Basics of C++: Tokens – Keywords – Identifiers and constants – Basic data types - Declaration of variables – Operators in C++ – Scope resolution operator – Operator precedence.

UNIT 2: CONTROL STRUCTURES AND STATEMENTS IN C++

Control structures in C++: if statement – switch statement – do-while statement – while statement – else statement- for statement - Functions in C++: Introduction - The main function – Function prototyping – Call by reference – Return by reference – Inline functions - Method overloading – friend and virtual functions – Math library functions.

UNIT 3: BASIC OOPS CONCEPTS IN C++

Specifying a class – Defining member functions – A C++ program with class – Parameterized constructors – Multiple constructors in a class – Constructors with default arguments – Copy constructor – Destructors - Operator overloading – Inheritance - Single inheritance – Multilevel inheritance – Multiple inheritance – Hierarchical inheritance – Hybrid inheritance.

UNIT 4: BASIC DATA STRUCTURES AND SORTING

Algorithm – Analysis – List ADT – Stack ADT – Queue ADT – Priority Queue – Stack implementation – Basic operations on stack – Application of stack – Queue: Introduction – Definition of Queue –implementation of Queue – Operation on a Queue – Applications of Queue – Sorting : bubble sort-Insertion sort - Merge sort - Quick sort-Searching – hashing

UNIT 5: GRAPH AND TREES

Trees: Introduction – Tree – Basic elements of a tree – Binary tree – Representation of binary tree – Operations on binary tree – AVL Tree – Operations on AVL Tree - Graph: Representation - Shortest pathalgorithm: Dijikstra’s algorithm - Minimum spanning tree: Prim’s Algorithm