

## **I. PROGRAMMING USING JAVA (CREDITS:4)**

### **Section - A**

History and Evolution of Java, Data Types, Variables and Arrays, Operators, Control Statements, Introducing Classes, A Closer Look at Methods and Classes.

Inheritance: Basics, Using super, Creating Multilevel Hierarchy, Method Overriding, Dynamic Method Dispatch, Using Abstract Classes, Using final with inheritance, The object Class. Packages and Interfaces: Defining a package, Finding packages and CLASSPATH, Access Protection, Importing Packages, Defining an Interface, Implementing Interface, Nested Interface, Applying Interface, Variables in Interfaces, Exception Interface: Fundamentals, Exception Types, Uncaught Exceptions, Using try and catch, Multiple catch clauses, Nested try Statements, throw, throws, finally, Java's inbuilt Exceptions, Creating own Exception Subclasses, Chained Exceptions, Using Exceptions, Multithreaded Programme: The java Thread Model, The Main Thread, Creating a thread, Creating Multiple Threads, Using is Alive() and join (), Thread Priorities, Synchronization, Inter thread Communication, Suspending, Resuming, and Stopping Threads, Using Multithreading.

### **Section - B**

I/O Basics: Streams, Byte Streams, Character Streams, The Predefined Streams, Reading Console Input, Writing Console Output, The Print Writer Class, Reading and writing files, Applet Fundamentals, The Transient and volatile Modifiers, Using Instance of, Static Import, Invoking Overloaded constructors Through this().

Introduction to Swing, Event handling, String Handling, Primitive Type Wrappers, Java and Database: JDBC Basics, SQL Package in Java, Working with database, Creation of JDBC Statements, Networking in Java: Basics

**Getting Started with Java, Java as a Platform Independent Language, Java SE, Java EE, Java ME**

**Installing the Java Development Kit (JDK), System Requirement, Microsoft Windows, Apple Mac OS X**

**Basic Syntax, First Java Program, Selection, Decision & Repetition, The If Statement & If-Else Statement**

**Objects and Classes, Controlling Access to Members, Polymorphism**