M.Sc. (CA) SEMESTER - I
M.Sc. (CA) PAPER - III
TITLE: CORE JAVA
PAPER CODE: CSA4103

[CREDITS - 4]

Learning Objectives:

1. To understand basic concepts of Java

	Title and Contents	No. of Lectures
Unit - I	**Introduction to Java Language** 1.1 History and Evolution of Java 1.2 OOP Principles 1.3 Java Platform 1.4 JDK Environment 1.5 Java Tools 1.6 Java Byte Code	**2**
Unit - II	**Basic Programming Concepts** 2.1 Keywords 2.2 Data Types 2.3 Variables 2.4 Operators 2.5 Naming Conventions 2.6 Type Casting 2.7 Control Statements 2.8 Arrays	**4**
Unit - III	**Object Oriented Concepts of Java** 3.1 Introducing classes and objects 3.2 Constructors (All types) 3.3 Garbage Collection and finalize() method 3.4 Inheritance Basics 3.5 Types of Inheritance 3.6 Implementation of polymorphism : Method Overloading and Method Overriding 3.7 Nested and Inner classes 3.8 Modifiers and Access Control Specifiers 3.9 Final variables, methods and classes 3.10 Abstract methods and classes 3.11 Interfaces 3.12 Creating and Importing Packages 3.13 Exception Handling	**8**
Unit - IV	**Java Library** 4.1 String Handling: String Constructors, Special String Operations, Character Extraction, String Comparison, Searching Strings, Modifying a String, valueOf(), StringBuffer 4.2 Primitive Type Wrappers: Number, Double and Float, Byte, Short, Integer and Long, Character Boolean, Void	**10**

	4.3 Utility Classes (Only listed below): Math, StringTokenizer, Date, Calender, GregorianCalender, Random	
Unit - V	**Files and Streams** 5.1 Exploring java.io package, File, Byte Streams 5.2 InputStream & OutputStream: FileInputStream & FileOutputStream, ByteArrayInputStream and ByteArrayOutputStream, DataInputStream & DataOutputStream 5.3 PrintStream 5.4 RandomAccessFile 5.5 Character Streams 5.6 Reader & Writer: FileReader & FileWriter, BufferedReader & BufferedWriter, CharArrayReader & CharArrayWriter 5.7 PrintWriter 5.8 Serialization 5.9 Serializable 5.10 ObjectInput & ObjectOutput: ObjectInputStream & ObjectOutputStream	**8**
Unit - VI	**Applets, AWT and Event Handling** 6.1 Applet Programming 6.2 Applet Basics 6.3 Applet Architecture 6.4 Applet Skeleton 6.5 update() and repaint() 6.6 HTML Applet Tag 6.7 Passing Parameters to an Applet Using Status Window 6.8 Introducing AWT: AWT classes, Windows Fundamentals, Working with Frame Windows Working with Graphics, Working with Colors and Fonts, AWT Controls, Layout Managers, Menus 6.9 Event Handling: Event Handling Mechanism, Delegation Event Model, Event Classes Event Listener Interfaces, Adapter Classes Anonymous Inner Classes	**8**
Unit - VII	**Swing** 7.1 Swing Features 7.2 Model View Controller Architecture for Swing, Components & Containers 7.3 Swing Controls: JApplet, JFrame, JButton, JCheckBox, JTextField, JTabbedPane, JInternalFrame, JScrollPane, JLabel, JList, JTree JTable, JDialog, JFileChooser, JProgressBar	**6**
Unit - VIII	**Multithreaded Programming** 8.1 Java Thread Model 8.2 The Main Thread 8.3 Creating a Thread Using isAlive() and join() 8.4 Thread Priorities 8.5 Thread Synchronization 8.6 Interthread Communication 8.7 Suspending, Resuming and Stopping Threads	**2**

References:

1. Herbert Schildt, The Complete Reference - Seventh Edition
2. Horstman & Cornell, Core Java (Volume 1 - Fundamentals) Eighth Edition
3. Horstman & Cornell, Core Java (Volume 2 - Advanced Features) Eighth Edition
4. Balaguruswamy, Programming with Java
5. Java 7 Programming - Black Book, Kogent Learning Solutions Inc.