

Java

Unit-wise syllabus and marks for the 2026-27 session.

UNITS	SESSION
9	2026-27

Exam pattern. Modelled on CISCE Java boards. ICSE Computer Applications: 100-mark theory paper (Section A 40 compulsory + Section B 60 with choice) plus 100-mark Internal Assessment (lab assignments + project, marked 50 internal / 50 external). ISC Computer Science: Theory 70 marks + Practical 30 marks.

Practical. Hands-on lab work in BlueJ (v5.4.2+ with JDK 11+) or any JDK-compatible IDE. Mirrors the ICSE Internal Assessment requirement of 20+ laboratory assignments across the year plus one real-life project, and the ISC practical paper where students design, code, and test working Java programs (problem analysis, algorithm, source listing, output).

#	UNIT AND TOPICS	MARKS
1	Object-Oriented Foundations Object-oriented programming paradigm vs procedural; Principles of OOP: data abstraction, encapsulation, inheritance, polymorphism; Objects and classes; class as a composite/user-defined data type; Introduction to Java: applications vs applets, JVM, byte code, compilation process; Open source concepts and IDEs (BlueJ, NetBeans)	—
2	Java Language Basics Character set, tokens, identifiers, literals; Keywords, escape sequences, ASCII and Unicode; Primitive data types and variables; Type conversion: implicit (coercion) and explicit (casting); Operators and expressions; operator precedence and associativity	—
3	Control Flow and Iteration Conditional statements: if, if-else, nested if, switch-case; Iteration: while, do-while, for loops; Nested loops; Jump statements: break and continue; Building menu-driven and pattern programs	—
4	Classes, Objects and Methods Defining classes, instance variables and methods; Constructors: default and parameterised; constructor overloading; Access specifiers and encapsulation (private data, public accessors); User-defined methods; pure and impure methods; method overloading; Passing parameters: call by value and call by reference; the this keyword; Static (class) variables and methods	—
5	Arrays and Strings	—

#	UNIT AND TOPICS	MARKS
	Single and double dimensional arrays; Array traversal, searching (linear, binary) and sorting (selection, bubble); String class and common methods: length, charAt, substring, indexOf, concat, replace, compareTo, equals; StringBuffer basics; manipulating and comparing strings; Wrapper classes, autoboxing and unboxing	
6	Inheritance and Polymorphism Base (super) and derived classes; extends keyword; Member access in derived classes; protected visibility; super keyword; redefinition and method overriding; Abstract classes and abstract methods; the Object class; Single and multilevel inheritance; runtime polymorphism; Interfaces and multiple implementation	—
7	Recursion Concept of recursion and the call stack; Recursive methods: factorial, GCD, Fibonacci, power; Recursive binary search; Base case vs recursive case; number-base conversions	—
8	Data Structures and Collections Stacks, queues and dequeues; implementation via classes; Defining data structures through interfaces with multiple implementations; Singly linked lists: algorithm and implementation; Binary trees and tree traversals (conceptual); ArrayList and dynamic collections; iterating over collections	—
9	Projects and Exam Practice End-to-end Java project: problem analysis, algorithm, coding and testing; Lab assignments aligned to ICSE Internal Assessment; Solved ICSE/ISC model and previous-year papers; Output prediction and debugging exercises	—

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