

**Infosys Certified Software Programmer
Java syllabus for the year 2020**

Aptitude (Round 1 only)

Topic	Subtopic
Quantitative Aptitude	Algebra
	Alligation or Mixture
	Average
	Geometry
	Numbers
	Percentage
	Permutation and Combination
	Probability
	Ratios and Proportion
	Time and Distance
Reasoning	Analytical
	Blood relationship
	Data Interpretation
	Data sufficiency
	Logical Deductions
	Logical Sequence of Words
	Logical Venn Diagrams
	Statement and Arguments
	Statement and Assumptions
	Statement and Conclusions
	Syllogism

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Java Programming, Data Structures and Algorithms

Topic	Subtopic
Introduction to Programming	Why Programming?
	Introduction to programming
	Representation of algorithms
	Introduction to Java
	Keywords, variables, identifiers and data types
	Operators
	Implicit/Explicit Type conversions
Control Structures	Selection Control Structures
	Iteration Control Structures
OOP Basics	Need for OOP
	Class and Objects
	Methods and parameters
	Constructors
	Instance and Local variables
	this keyword
Memory management	Memory management
OOP concepts	Encapsulation
	Abstraction
	Access modifiers
Arrays and String	Working with Arrays
	String and its methods
Debugging & Code Analysis	Debugging
	Code Analysis using Programming Mistake Detector (PMD)
Static	Static variables, methods, blocks
Relationships	Association
	Aggregation
	Inheritance and its types
	super keyword
Polymorphism	Static polymorphism
	Dynamic polymorphism
Object and Wrapper classes	Object and Wrapper classes
Abstract , final and Interfaces	Abstract classes and methods
	final class, method, variable
	Interfaces
Exception handling and packages	Exception handling
	Packages
Unit testing	Unit testing using JUnit and Code coverage
Recursion	Recursion
Regular expression	Regular expression

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Introduction to Data Structures	Limitation of Arrays
	Introduction to Linked List
	Stack
	Queue
Java Collections framework and Generics	Introduction to Java Collections framework
	Hierarchy of Java Collections framework
	Introduction to Generics
	Generic types
	Generic methods
	Collection interface
	Collections class
	ArrayList class
	LinkedList class
	Set interface and HashSet class
	Queue interface, Deque interface and ArrayDeque class
Map interface and HashMap class	
Introduction to algorithms	Need for algorithms
	Characteristics of algorithms
Analysis of algorithms	Types of analysis – worst case, average case, best case and asymptotic notations
	Calculating time complexity
Searching algorithms	Introduction to searching algorithms
	Linear search
	Binary search
Sorting algorithms	Introduction to sorting algorithms
	Bubble sort
	Merge sort
Algorithm techniques	Brute force
	Divide and conquer
	Greedy approach
	Dynamic programming
Comparison of algorithms	Choosing the best type of algorithm for a given problem
	Comparison of few algorithms
	Comparison of operations performed on data structures
Documentation link:	
https://docs.oracle.com/javase/tutorial/tutorialLearningPaths.html	

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Database Management System

Topic	Subtopic
Introduction to DBMS	Database Systems Overview
	Data Integrity and Constraints
	Entities and Relationships
SQL Basics	SQL Commands and Data Types
	Operators and Expressions
DDL Statements	Create and Drop Table
	Alter Table
DML Statements	Inserting Data
	Retrieving Data
	Updating Data
	Deleting Data
SQL Functions, Sorting and Grouping data	Functions
	Sorting Data
	Grouping Data
	Combining Data
Joins	Cartesian Product and Inner Join
	Self-Join
	Outer Join
Subquery	Independent Subquery
	Correlated Subquery
Transactions	Transactions
Normalization	Functional Dependency
	Normal Forms
Performance	Index
	Best Practices for Query Writing
NoSQL Databases	Introduction to NoSQL
	CAP Theorem
	Types of NoSQL Databases
	MongoDB