

TK-Tips: Java Interview Questions – Part 1 (25 Q&A;)



SECTION 1 — CORE JAVA BASICS

Q1. What is Java?

Java is a high-level, object-oriented, platform-independent programming language used for enterprise and mobile applications.

Q2. Why is Java Platform Independent?

Because Java compiles to bytecode which is executed by the JVM, independent of OS.

Q3. JDK vs JRE vs JVM

JVM executes bytecode, JRE provides libraries + JVM, JDK includes JRE + development tools.

Q4. What is OOP?

A programming paradigm based on objects with four principles: Encapsulation, Inheritance, Polymorphism, Abstraction.

Q5. What is a Class & an Object?

Class = blueprint; Object = instance created from a class.

SECTION 2 — MEMORY MANAGEMENT

Q6. Why are Strings Immutable?

To ensure security, thread-safety, and memory optimization via String Pool.

Q7. What is Garbage Collection?

Automatic removal of unused objects from heap memory.

Q8. *String vs StringBuilder vs StringBuffer*

String immutable; StringBuilder mutable and fast; StringBuffer mutable but thread-safe.

Q9. *OutOfMemoryError vs StackOverflowError*

OOM occurs when heap is full; StackOverflow occurs in deep recursion.

Q10. *What is ClassLoader?*

It loads Java classes into JVM dynamically during runtime.

SECTION 3 — EXCEPTION HANDLING

Q11. *What is an Exception?*

An event that interrupts normal program flow.

Q12. *Checked vs Unchecked Exceptions*

Checked checked during compile-time; Unchecked during runtime.

Q13. *throw vs throws*

throw: manually throw exception; throws: declare method may throw exception.

Q14. *What is finally block?*

Executes always, used for closing resources.

Q15. *What is try-with-resources?*

Automatically closes resources after execution.

SECTION 4 — COLLECTIONS

Q16. *What is Collection Framework?*

A set of interfaces and classes for data structure operations.

Q17. *ArrayList vs LinkedList*

ArrayList faster for access; LinkedList faster for insert/delete.

Q18. *HashMap vs Hashtable*

HashMap non-synchronized; Hashtable synchronized.

Q19. *What is Iterator?*

A cursor to traverse collection elements safely.

Q20. *Fail-fast vs Fail-safe*

Fail-fast throws ConcurrentModificationException; fail-safe works on cloned collection.

SECTION 5 — JAVA 8 FEATURES

Q21. What is a Lambda Expression?

Java 8 feature enabling functional programming using concise syntax.

Q22. What is Stream API?

Processes collections using map, filter, reduce operations.

Q23. Functional Interface?

Interface with exactly one abstract method, e.g., Runnable.

Q24. Default Methods?

Methods with body inside interface, introduced in Java 8.

Q25. Optional Class?

Used to avoid NullPointerException by wrapping nullable values.