**Core Java Concepts:**

1. **Q:** What is the difference between JDK and JRE?  
   **A:** JDK stands for Java Development Kit, used for building Java applications, while JRE stands for Java Runtime Environment, required to run Java programs.
2. **Q:** Why is Java a platform-independent language?  
   **A:** Java achieves platform independence by compiling code into bytecode that runs on any platform using the JVM.
3. **Q:** What is the difference between an abstract class and an interface?  
   **A:** An abstract class can contain abstract and concrete methods, while an interface only has abstract methods.
4. **Q:** What is the difference between final, finally, and finalize?  
   **A:** final is a modifier to make entities constant, finally ensures code execution after a try-catch block, and finalize is used for garbage collection.
5. **Q:** What is the difference between stack and heap memory?  
   **A:** Stack memory is for local variables and function calls, while heap memory is for objects and instance variables.
6. **Q:** What is the difference between method overloading and method overriding?  
   **A:** Overloading involves methods with the same name but different parameters, while overriding redefines a superclass method in a subclass.
7. **Q:** What is the difference between private and protected modifiers?  
   **A:** Private restricts access to within the class, while protected allows access within the package and subclasses.

**Object-Oriented Programming:**

1. **Q:** What are the Object-Oriented features supported by Java?  
   **A:** Encapsulation, Inheritance, Polymorphism, and Abstraction.
2. **Q:** What is the difference between composition and inheritance?  
   **A:** Composition is a "has-a" relationship, while inheritance is an "is-a" relationship.
3. **Q:** What is the purpose of an abstract class?  
   **A:** To serve as a base class for other classes, with methods that must be implemented by subclasses.
4. **Q:** What is the diamond problem in Java, and how is it solved?  
   **A:** It arises in multiple inheritance. Java avoids it by using interfaces instead of allowing multiple superclass inheritance.

**Data Structures and Algorithms:**

1. **Q:** Why are strings immutable in Java?  
   **A:** For security, efficiency, and to allow sharing in the string pool.
2. **Q:** What is the difference between ArrayList and LinkedList?  
   **A:** ArrayList is faster for accessing elements, while LinkedList is better for insertions and deletions.
3. **Q:** What is the difference between HashMap and TreeMap?  
   **A:** HashMap is unordered, while TreeMap maintains sorted order.

**Exception Handling:**

1. **Q:** What is an exception?  
   **A:** An event that disrupts normal program flow.
2. **Q:** What is the difference between checked and unchecked exceptions?  
   **A:** Checked exceptions are checked at compile time, while unchecked exceptions occur at runtime.
3. **Q:** What is the purpose of the try-catch block?  
   **A:** To handle exceptions gracefully.

**Multithreading:**

1. **Q:** What is the difference between a process and a thread?  
   **A:** A process runs independently, while a thread runs within a process, sharing its memory.
2. **Q:** What is synchronization in Java?  
   **A:** A mechanism to prevent thread interference when accessing shared resources.
3. **Q:** What is a deadlock?  
   **A:** A situation where two threads are waiting for each other to release resources, preventing progress.