

1. What is the purpose of the 'static' keyword in Java?

- A. To define a constant
- B. To declare a static method
- C. To indicate that a variable or method belongs to the class, not an instance
- D. Both B and C

2. What is the default value of a local variable in Java?

- A. 0
- B. null
- C. Depends on the variable type
- D. Not defined

3. In Java, which method is called when an object is created?

- A. start()
- B. run()
- C. init()
- D. constructor()

4. What is the main purpose of the 'super' keyword in Java?

- A. To access the superclass of a derived class
- B. To call the superclass constructor
- C. To invoke the superclass method
- D. All of the above

5. Which of the following statements is true about the 'final' keyword in Java?

- A. A final class cannot be extended
- B. A final method cannot be overridden
- C. A final variable cannot be modified after initialization
- D. All of the above

6. What is the purpose of the 'break' statement in Java?

- A. To terminate a loop or switch statement
- B. To skip the current iteration of a loop
- C. To exit a method
- D. Both A and B

7. Which collection class allows duplicate elements in Java?

- A. HashSet
- B. TreeSet
- C. ArrayList
- D. HashMap

8. What is the difference between '==' and '.equals()' in Java when comparing objects?

- A. '==' compares object references, while '.equals()' compares the content of objects
- B. They are used interchangeably
- C. '==' is used for primitive types, and '.equals()' is used for objects
- D. There is no difference

9. What is the purpose of the 'interface' keyword in Java?

- A. To define a class
- B. To create an abstract class
- C. To define a protocol or contract for a class
- D. To declare a variable

10. What is the output of the following code snippet:

```
String str1 = "Hello";  
String str2 = new String("Hello");  
System.out.println(str1 == str2);
```

- A. true
- B. false
- C. Compilation error
- D. Runtime error

11. Which of the following is true about the 'this' keyword in Java?

- A. It refers to the current class instance
- B. It refers to the current class's static variable
- C. It refers to the superclass instance
- D. It is used to create an instance of a class

12. What is the purpose of the 'finally' block in a try-catch-finally statement?

- A. To handle exceptions
- B. To execute code regardless of whether an exception occurs or not
- C. To terminate the program

- D. To catch multiple exceptions

13. What is the output of the following code snippet:

```
int x = 5;  
System.out.println(x++ + ++x);
```

- A. 11
- B. 12
- C. 13
- D. 14

14. Which keyword is used to prevent a method from being overridden in a subclass?

- A. override
- B. final
- C. abstract
- D. static

15. What is the purpose of the 'instanceof' operator in Java?

- A. To compare two objects for equality
- B. To check if an object is an instance of a particular class or interface
- C. To create a new instance of a class
- D. To determine the size of an object

16. What is the role of the 'throws' clause in a method signature?

- A. To declare checked exceptions that the method may throw
- B. To declare unchecked exceptions that the method may throw
- C. To specify the return type of the method
- D. Both A and B

17. What is the purpose of the 'compareTo' method in the Comparable interface?

- A. To compare the content of two objects
- B. To compare the memory addresses of two objects
- C. To compare the size of two objects
- D. To compare the natural ordering of two objects

18. Which method is called automatically when an object is eligible for garbage collection?

- A. finalize()
- B. destroy()
- C. cleanup()
- D. delete()

19. What is the difference between 'ArrayList' and 'LinkedList' in Java?

- A. ArrayList is synchronized, while LinkedList is not
- B. ArrayList uses a dynamic array, while LinkedList uses a doubly linked list
- C. ArrayList allows random access, while LinkedList does not
- D. Both B and C

20. What is the purpose of the 'transient' keyword in Java?

- A. To make a variable thread-safe
- B. To declare a variable that should not be serialized
- C. To declare a constant
- D. To declare an abstract class

21. What is the output of the following code snippet:

```
int[] numbers = {1, 2, 3, 4, 5};  
System.out.println(numbers[5]);
```

- A. 5
- B. Compilation error
- C. Runtime error
- D. 0

22. What is the purpose of the 'Thread.sleep()' method in Java?

- A. To make the current thread sleep for a specified amount of time
- B. To stop the execution of the program
- C. To release the lock on an object
- D. To terminate a thread

23. Which design pattern is used for creating objects without specifying the exact class of the object that will be created?

- A. Singleton pattern
- B. Factory pattern
- C. Observer pattern
- D. Builder pattern

24. What is the purpose of the 'volatile' keyword in Java?

- A. To declare a variable that cannot be changed
- B. To make a variable visible to all threads and prevent caching
- C. To declare a variable that can only be accessed within the same package
- D. To synchronize methods in a class

25. What is the difference between 'throw' and 'throws' in Java?

- A. 'throw' is used to explicitly throw an exception, while 'throws' is used to declare exceptions that a method may throw
- B. 'throw' is used in the method signature, while 'throws' is used in the method body
- C. 'throw' is used for checked exceptions, while 'throws' is used for unchecked exceptions
- D. There is no difference