Java MCQ Questions

Java Syntax (20 Questions)

1. What is the correct syntax to declare a variable in Java?
   - A) `int x = 10;`
   - B) `x = 10;`
   - C) `int x; x = 10;`
   - D) Both A and C
2. Which of the following is a valid Java identifier?
   - A) `myVar`
   - B) `_myVar`
   - C) `$myVar`
   - D) All of the above
3. What is the output of `System.out.println(10 + 20 + "30");`?
   - A) `3030`
   - B) `60`
   - C) `102030`
   - D) `"3030"`
4. Which keyword is used to define a constant in Java?
   - A) `const`
   - B) `final`
   - C) `static`
   - D) `define`
5. What is the default value of an uninitialized `int` variable in Java?
   - A) `0`
   - B) `null`
   - C) `undefined`
   - D) Compilation error
6. Which of the following is not a primitive data type in Java?
   - A) `int`
   - B) `float`
   - C) `String`
   - D) `boolean`
7. What is the correct way to create an object in Java?
   - A) `MyClass obj = new MyClass();`
   - B) `MyClass obj = MyClass();`
   - C) `new MyClass obj;`
   - D) `MyClass obj = new MyClass;`
8. Which operator is used to compare two values for equality in Java?
   - A) `=`
   - B) `==`
   - C) `===`
   - D) `!=`
9. What is the output of `System.out.println(5 > 3 ? "Yes" : "No");`?
   - A) `Yes`
   - B) `No`
   - C) `true`
   - D) `false`
10. Which of the following is a valid Java comment?
    - A) `// This is a comment`
    - B) `/* This is a comment */`
    - C) `/** This is a comment */`
    - D) All of the above
11. What is the output of `System.out.println(10 / 3);`?
    - A) `3`
    - B) `3.333`
    - C) `3.0`
    - D) `3.3333333333333335`

12. Which of the following is not a valid Java keyword?
    - A) `class`
    - B) `interface`
    - C) `extends`
    - D) `implements`
13. What is the output of `System.out.println("Hello".length());`?
    - A) `5`
    - B) `6`
    - C) `Compilation error`
    - D) `Runtime error`
14. Which of the following is true about Java arrays?
    - A) Arrays are dynamically sized.
    - B) Arrays can store multiple data types.
    - C) Arrays are zero-indexed.
    - D) Arrays cannot be initialized with values.
15. What is the output of `System.out.println(10 + "20");`?
    - A) `30`
    - B) `1020`
    - C) `"1020"`
    - D) Compilation error
16. Which of the following is not a valid Java loop?
    - A) `for`
    - B) `while`
    - C) `do-while`
    - D) `repeat-until`
17. What is the output of `System.out.println(Math.pow(2, 3));`?
    - A) `6`
    - B) `8`
    - C) `9`
    - D) `16`
18. Which of the following is true about Java methods?
    - A) Methods must return a value.
    - B) Methods can be overloaded.
    - C) Methods cannot be static.
    - D) Methods cannot have parameters.
19. What is the output of `System.out.println(10 > 9 && 5 < 4);`?
    - A) `true`
    - B) `false`
    - C) `Compilation error`
    - D) `Runtime error`
20. Which of the following is not a valid Java access modifier?
    - A) `public`
    - B) `private`
    - C) `protected`
    - D) `internal`

OOP Concepts (20 Questions)

21. What is the main principle of OOP that allows a class to inherit properties and methods from another class?
    - A) Encapsulation
    - B) Polymorphism
    - C) Inheritance
    - D) Abstraction
22. Which keyword is used to achieve inheritance in Java?
    - A) `extends`
    - B) `implements`
    - C) `inherits`
    - D) `super`
23. What is the output of the following code?

```
class Animal {
    void sound() {
        System.out.println("Animal sound");
    }
}
class Dog extends Animal {
    void sound() {
        System.out.println("Bark");
    }
}
public class Main {
    public static void main(String[] args) {
        Animal obj = new Dog();
        obj.sound();
    }
}
```

- A) `Animal sound`
- B) `Bark`
- C) `Compilation error`
- D) `Runtime error`

24. Which of the following is true about abstract classes in Java?
    - A) Abstract classes cannot have constructors.
    - B) Abstract classes cannot be instantiated.
    - C) Abstract classes cannot have methods.
    - D) Abstract classes cannot be extended.
25. What is the output of the following code?

```
class A {
    A() {
        System.out.println("A");
    }
}
class B extends A {
    B() {
        System.out.println("B");
    }
}
public class Main {
    public static void main(String[] args) {
        B obj = new B();
    }
}
```

- A) `A`
- B) `B`
- C) `A B`
- D) `B A`

26. Which of the following is true about interfaces in Java?
    - A) Interfaces can have constructors.
    - B) Interfaces can have method implementations.
    - C) Interfaces cannot have variables.
    - D) Interfaces support multiple inheritance.
27. What is the output of the following code?

```
interface Animal {
    void sound();
}
class Dog implements Animal {
    public void sound() {
        System.out.println("Bark");
    }
}
public class Main {
    public static void main(String[] args) {
        Animal obj = new Dog();
        obj.sound();
    }
}
```

- A) `Bark`
- B) `Compilation error`
- C) `Runtime error`
- D) `No output`

28. Which of the following is true about method overriding in Java?
    - A) The method signature must be different.
    - B) The method must be static.
    - C) The method must have the same name and parameters.
    - D) The method must be private.
29. What is the output of the following code?

```java
class A {
    void display() {
        System.out.println("A");
    }
}
class B extends A {
    void display() {
        System.out.println("B");
    }
}
public class Main {
    public static void main(String[] args) {
        A obj = new B();
        obj.display();
    }
}
```

    - A) `A`
    - B) `B`
    - C) `Compilation error`
    - D) `Runtime error`
30. Which of the following is true about encapsulation in Java?
    - A) It is achieved by using private variables and public methods.
    - B) It is achieved by using public variables and private methods.
    - C) It is achieved by using static variables.
    - D) It is achieved by using final variables.
31. What is the output of the following code?

```java
class A {
    static void display() {
        System.out.println("A");
    }
}
class B extends A {
    static void display() {
        System.out.println("B");
    }
}
public class Main {
    public static void main(String[] args) {
        A obj = new B();
        obj.display();
    }
}
```

    - A) `A`
    - B) `B`
    - C) `Compilation error`
    - D) `Runtime error`
32. Which of the following is true about polymorphism in Java?
    - A) It allows a class to have multiple constructors.
    - B) It allows a method to have multiple implementations.
    - C) It allows a variable to have multiple data types.
    - D) It allows a class to have multiple superclasses.
33. What is the output of the following code?

```
class A {
    void display() {
        System.out.println("A");
    }
}
class B extends A {
    void display() {
        System.out.println("B");
    }
}
public class Main {
    public static void main(String[] args) {
        A obj = new A();
        obj.display();
    }
}
```

- A) `A`
- B) `B`
- C) `Compilation error`
- D) `Runtime error`

34. Which of the following is true about constructors in Java?
    - A) Constructors can return a value.
    - B) Constructors can be inherited.
    - C) Constructors can be overloaded.
    - D) Constructors can be static.
35. What is the output of the following code?

```
class A {
    A() {
        System.out.println("A");
    }
}
class B extends A {
    B() {
        System.out.println("B");
    }
}
public class Main {
    public static void main(String[] args) {
        B obj = new B();
    }
}
```

- A) `A`
- B) `B`
- C) `A B`
- D) `B A`

36. Which of the following is true about the `super` keyword in Java?
    - A) It is used to call the superclass constructor.
    - B) It is used to call the subclass constructor.
    - C) It is used to call the current class constructor.
    - D) It is used to call the static methods.
37. What is the output of the following code?

```java
class A {
    void display() {
        System.out.println("A");
    }
}
class B extends A {
    void display() {
        super.display();
        System.out.println("B");
    }
}
public class Main {
    public static void main(String[] args) {
        B obj = new B();
        obj.display();
    }
}
```

- A) `A`
- B) `B`
- C) `A B`
- D) `B A`

38. Which of the following is true about the `final` keyword in Java?
    - A) It is used to make a class immutable.
    - B) It is used to make a method immutable.
    - C) It is used to make a variable immutable.
    - D) All of the above.
39. What is the output of the following code?

```java
class A {
    final void display() {
        System.out.println("A");
    }
}
class B extends A {
    void display() {
        System.out.println("B");
    }
}
public class Main {
    public static void main(String[] args) {
        B obj = new B();
        obj.display();
    }
}
```

    - A) `A`
    - B) `B`
    - C) `Compilation error`
    - D) `Runtime error`
40. Which of the following is true about the `this` keyword in Java?
    - A) It is used to refer to the current object.
    - B) It is used to refer to the superclass object.
    - C) It is used to refer to the subclass object.
    - D) It is used to refer to the static methods.

JUnit Testing (10 Questions)

41. Which annotation is used to mark a method as a test method in JUnit?
    - A) `@Test`
    - B) `@Before`
    - C) `@After`
    - D) `@Ignore`
42. Which annotation is used to run a method before each test in JUnit?
    - A) `@Test`
    - B) `@Before`

    - C) `@After`
    - D) `@BeforeClass`
43. Which annotation is used to run a method after all tests in JUnit?
    - A) `@Test`
    - B) `@Before`
    - C) `@After`
    - D) `@AfterClass`
44. Which of the following is true about JUnit assertions?
    - A) `assertEquals` checks if two values are equal.
    - B) `assertTrue` checks if a condition is true.
    - C) `assertNull` checks if an object is null.
    - D) All of the above.
45. What is the purpose of the `@Ignore` annotation in JUnit?
    - A) To skip a test method.
    - B) To mark a test method as failed.
    - C) To mark a test method as passed.
    - D) To mark a test method as deprecated.
46. Which of the following is true about parameterized tests in JUnit?
    - A) They allow running the same test with different inputs.
    - B) They allow running multiple tests in parallel.
    - C) They allow running tests in a specific order.
    - D) They allow running tests only once.
47. Which of the following is true about JUnit 5?
    - A) It introduces new annotations like `@BeforeEach` and `@AfterEach`.
    - B) It is backward compatible with JUnit 4.
    - C) It supports lambda expressions.
    - D) All of the above.
48. What is the purpose of the `@RunWith` annotation in JUnit?
    - A) To specify a custom test runner.
    - B) To specify a test suite.
    - C) To specify a test method.
    - D) To specify a test class.
49. Which of the following is true about JUnit test suites?
    - A) They allow grouping multiple test classes.
    - B) They allow running tests in a specific order.
    - C) They allow running tests only once.
    - D) They allow running tests in parallel.
50. What is the purpose of the `@Timeout` annotation in JUnit?
    - A) To specify a timeout for a test method.
    - B) To specify a timeout for a test class.
    - C) To specify a timeout for a test suite.
    - D) To specify a timeout for a test runner.

SOLID Principles (10 Questions)

51. What does the “S” in SOLID stand for?
    - A) Single Responsibility Principle
    - B) Segregation of Interface Principle
    - C) Separation of Concerns Principle
    - D) Static Responsibility Principle
52. What does the “O” in SOLID stand for?
    - A) Open/Closed Principle
    - B) Object-Oriented Principle
    - C) Overloading Principle
    - D) Overriding Principle
53. What does the “L” in SOLID stand for?
    - A) Liskov Substitution Principle
    - B) Layered Architecture Principle
    - C) Lazy Loading Principle
    - D) Low Coupling Principle

54. What does the “I” in SOLID stand for?
    - A) Interface Segregation Principle
    - B) Inheritance Principle
    - C) Integration Principle
    - D) Immutability Principle
55. What does the “D” in SOLID stand for?
    - A) Dependency Inversion Principle
    - B) Data Hiding Principle
    - C) Dynamic Binding Principle
    - D) Delegation Principle
56. Which principle states that a class should have only one reason to change?
    - A) Single Responsibility Principle
    - B) Open/Closed Principle
    - C) Liskov Substitution Principle
    - D) Interface Segregation Principle
57. Which principle states that software entities should be open for extension but closed for modification?
    - A) Single Responsibility Principle
    - B) Open/Closed Principle
    - C) Liskov Substitution Principle
    - D) Interface Segregation Principle
58. Which principle states that objects of a superclass should be replaceable with objects of a subclass without affecting the correctness of the program?
    - A) Single Responsibility Principle
    - B) Open/Closed Principle
    - C) Liskov Substitution Principle
    - D) Interface Segregation Principle
59. Which principle states that no client should be forced to depend on methods it does not use?
    - A) Single Responsibility Principle
    - B) Open/Closed Principle
    - C) Liskov Substitution Principle
    - D) Interface Segregation Principle
60. Which principle states that high-level modules should not depend on low-level modules, but both should depend on abstractions?
    - A) Single Responsibility Principle
    - B) Open/Closed Principle
    - C) Liskov Substitution Principle
    - D) Dependency Inversion Principle

Git Commands (10 Questions)

61. Which command is used to initialize a new Git repository?
    - A) `git init`
    - B) `git start`
    - C) `git new`
    - D) `git create`
62. Which command is used to clone a remote repository?
    - A) `git clone`
    - B) `git copy`
    - C) `git pull`
    - D) `git fetch`
63. Which command is used to stage all changes in the working directory?
    - A) `git add .`
    - B) `git stage .`
    - C) `git commit .`
    - D) `git push .`
64. Which command is used to commit changes with a message?
    - A) `git commit -m "message"`
    - B) `git push -m "message"`

- C) `git save -m "message"`
- D) `git add -m "message"`

65. Which command is used to push changes to a remote repository?
    - A) `git push`
    - B) `git pull`
    - C) `git commit`
    - D) `git fetch`
66. Which command is used to view the commit history?
    - A) `git log`
    - B) `git history`
    - C) `git status`
    - D) `git show`
67. Which command is used to create a new branch?
    - A) `git branch <branch_name>`
    - B) `git checkout <branch_name>`
    - C) `git create <branch_name>`
    - D) `git new <branch_name>`
68. Which command is used to switch to a different branch?
    - A) `git checkout <branch_name>`
    - B) `git switch <branch_name>`
    - C) `git move <branch_name>`
    - D) `git change <branch_name>`
69. Which command is used to merge a branch into the current branch?
    - A) `git merge <branch_name>`
    - B) `git combine <branch_name>`
    - C) `git join <branch_name>`
    - D) `git add <branch_name>`
70. Which command is used to discard changes in the working directory?
    - A) `git reset --hard`
    - B) `git discard`
    - C) `git clean`
    - D) `git remove`

UML Class Diagrams (10 Questions)

71. What does a class diagram represent in UML?
    - A) The structure of a system
    - B) The behavior of a system
    - C) The interaction between objects
    - D) The flow of data
72. Which symbol is used to represent a class in a UML class diagram?
    - A) Rectangle
    - B) Circle
    - C) Diamond
    - D) Arrow
73. What does a “+” symbol before a method or attribute in a UML class diagram indicate?
    - A) Public
    - B) Private
    - C) Protected
    - D) Static
74. What does a “-” symbol before a method or attribute in a UML class diagram indicate?
    - A) Public
    - B) Private
    - C) Protected
    - D) Static
75. Which relationship is represented by a solid line with an arrowhead in a UML class diagram?
    - A) Association
    - B) Inheritance
    - C) Aggregation

    - D) Composition
76. Which relationship is represented by a hollow diamond in a UML class diagram?
    - A) Association
    - B) Inheritance
    - C) Aggregation
    - D) Composition
77. Which relationship is represented by a filled diamond in a UML class diagram?
    - A) Association
    - B) Inheritance
    - C) Aggregation
    - D) Composition
78. What does a dotted arrow represent in a UML class diagram?
    - A) Dependency
    - B) Inheritance
    - C) Aggregation
    - D) Composition
79. Which of the following is true about multiplicity in UML class diagrams?
    - A) It indicates the number of instances of one class related to another.
    - B) It indicates the visibility of attributes and methods.
    - C) It indicates the direction of the relationship.
    - D) It indicates the type of relationship.
80. Which of the following is true about abstract classes in UML class diagrams?
    - A) They are represented by italicized names.
    - B) They are represented by underlined names.
    - C) They are represented by bold names.
    - D) They are represented by names in parentheses.

Answers

Java Syntax

1. D
2. D
3. A
4. B
5. A
6. C
7. A
8. B
9. A
10. D
11. A
12. C
13. A
14. C
15. B
16. D
17. B
18. B
19. B
20. D

OOP Concepts

21. C
22. A
23. B
24. B
25. C

26. D
27. A
28. C
29. B
30. A
31. A
32. B
33. A
34. C
35. C
36. A
37. C
38. D
39. C
40. A

JUnit Testing

41. A
42. B
43. D
44. D
45. A
46. A
47. D
48. A
49. A
50. A

SOLID Principles

51. A
52. A
53. A
54. A
55. A
56. A
57. B
58. C
59. D
60. D

Git Commands

61. A
62. A
63. A
64. A
65. A
66. A
67. A
68. A
69. A
70. A

UML Class Diagrams

71. A
72. A
73. A
74. B

75. B
76. C
77. D
78. A
79. A
80. A