1. Which method in Object class is inherited by all Java classes but should always be overridden when overriding equals()?
A) toString()
B) clone()
C) hashCode()
D) finalize()
Answer: C

2. What will be the output?
class Parent { void show(){System.out.println("Parent");} }
class Child extends Parent { void show(){System.out.println("Child");} }
public class Test { public static void main(String[] args){ Parent p=new Child(); p.show(); } }
A) Parent
B) Child
C) Compilation error
D) Runtime error
Answer: B

3. Which concept allows method resolution at runtime?
A) Early binding
B) Dynamic binding
C) Static binding
D) Compile-time binding
Answer: B

4. Which of the following cannot be overridden in Java?
A) private methods
B) static methods
C) final methods
D) All of these
Answer: D

5. Which Java feature supports loose coupling and multiple inheritance?
A) Abstract class
B) Interfaces
C) Inheritance
D) Polymorphism
Answer: B

6. Which OOP principle is violated when subclass modifies superclass behavior unexpectedly?
A) Liskov Substitution

B) Encapsulation

C) Abstraction

D) Polymorphism

Answer: A

7. Which OOP concept supports open/closed principle in Java?

A) Inheritance

B) Polymorphism

C) Abstraction

D) Encapsulation

Answer: B

8. What happens if an abstract class has no abstract methods?

A) Compilation error

B) It is still valid

C) It must have at least one abstract method

D) It becomes interface

Answer: B

9. Which keyword is used to access outer class from inner class if names conflict?

A) super

B) OuterClass.this

C) this

D) parent

Answer: B

10. What is true about constructor overriding in Java?

A) Constructors can be overridden

B) Constructors cannot be overridden

C) Constructors must be abstract

D) Constructors can be final

Answer: B

11. Which Java class is cloneable by default?

A) Object

B) String

C) Arrays

D) None

Answer: D

12. Which interface must be implemented for deep cloning?

A) Serializable

B) Cloneable

C) Comparable

D) Iterable

Answer: B

13. Which OOP principle allows multiple methods with same name but different signatures?

A) Method overriding

B) Method overloading

C) Abstraction

D) Encapsulation

Answer: B

14. Which OOP principle allows subclass to redefine methods of parent class?

A) Overloading

B) Overriding

C) Abstraction

D) Encapsulation

Answer: B

15. Which Java feature ensures runtime method resolution based on object type, not reference type?

A) Dynamic binding

B) Static binding

C) Overloading

D) Encapsulation

Answer: A

16. Which keyword is mandatory in child constructor if parent class doesn't have default constructor?

A) super()

B) this()

C) final

D) abstract

Answer: A

17. What is true about interfaces with default methods?

A) Multiple inheritance conflict resolved using interfaceName.super.method()

B) They cannot have method body

C) They cannot be inherited

D) They must be abstract

Answer: A

18. Which Java class provides reflection capabilities for OOP?
A) Class
B) Object
C) Reflect
D) Method
Answer: A

19. Which keyword can be used inside static nested classes to refer outer class members?
A) this
B) super
C) OuterClass.this
D) Cannot access directly
Answer: D

20. Which Java class allows creating anonymous objects?
A) Object
B) Anonymous
C) Any class
D) None
Answer: C

21. Which access modifier allows method overriding across packages but not outside subclasses?
A) private
B) default
C) protected
D) public
Answer: C

22. Which annotation ensures method overriding is checked at compile time?
A) @Check
B) @Override
C) @Method
D) @Polymorphic
Answer: B

23. Which concept supports late binding of methods in Java?
A) Overloading
B) Overriding

C) Both

D) None

Answer: B

24. Which keyword is used to prevent inheritance but allow object creation?

A) final

B) abstract

C) static

D) private

Answer: A

25. Which method is used to get runtime class of an object?

A) getType()

B) getClass()

C) typeOf()

D) classOf()

Answer: B

26. Which Java mechanism violates encapsulation principle?

A) Reflection

B) Serialization

C) Inheritance

D) Polymorphism

Answer: A

27. Which method is executed just before garbage collection?

A) finalize()

B) destructor()

C) close()

D) free()

Answer: A

28. Which OOP principle ensures subclasses must be substitutable for base class?

A) Liskov Substitution Principle

B) Interface Segregation

C) Dependency Inversion

D) Encapsulation

Answer: A

29. Which OOP concept supports hiding implementation but exposing operations?

A) Abstraction
B) Encapsulation
C) Polymorphism
D) Inheritance
Answer: A

30. Which is true about overriding static methods in Java?
A) They cannot be overridden
B) They can only be hidden
C) They behave like class methods
D) All of these
Answer: D

31. Which keyword in Java supports multiple interfaces?
A) extends
B) implements
C) super
D) inherits
Answer: B

32. Which OOP principle allows code extensibility without modifying existing code?
A) Open/Closed Principle
B) Encapsulation
C) Inheritance
D) Polymorphism
Answer: A

33. Which of the following can access private members via reflection?
A) setAccessible(true)
B) super
C) this
D) interface
Answer: A

34. Which OOP principle is used when subclass narrows visibility of overridden method?
A) Violates overriding rules
B) Encapsulation
C) Abstraction
D) None
Answer: A

35. Which method must be implemented when class implements Comparable interface?
A) compare()
B) compareTo()
C) equals()
D) hashCode()
Answer: B

36. Which method must be implemented when class implements Comparator interface?
A) compare()
B) compareTo()
C) equals()
D) hashCode()
Answer: A

37. Which keyword ensures immutability when applied to class?
A) final
B) static
C) abstract
D) private
Answer: A

38. Which Java OOP feature allows a class to have methods with same name but resolved at compile time?
A) Overriding
B) Overloading
C) Polymorphism
D) Abstraction
Answer: B

39. Which feature ensures runtime resolution of method in subclass object reference?
A) Dynamic binding
B) Static binding
C) Encapsulation
D) Abstraction
Answer: A

40. Which concept in OOP may lead to diamond problem if not controlled?
A) Multiple inheritance
B) Polymorphism
C) Encapsulation

D) Abstraction
Answer: A

41. Which feature of Java resolves diamond problem?
A) No multiple inheritance with classes
B) Interfaces with default methods conflict resolution
C) Both A and B
D) None
Answer: C

42. Which interface allows object cloning?
A) Cloneable
B) Serializable
C) Comparable
D) Runnable
Answer: A

43. Which OOP principle supports information hiding?
A) Encapsulation
B) Abstraction
C) Polymorphism
D) Inheritance
Answer: A

44. Which of the following cannot be abstract in Java?
A) Class
B) Method
C) Constructor
D) Interface
Answer: C

45. Which annotation in Java indicates a method must be implemented from parent?
A) @Override
B) @Inherited
C) @Abstract
D) None
Answer: A

46. Which OOP concept allows different behaviors when same method is invoked on different objects?
A) Abstraction

B) Polymorphism
C) Encapsulation
D) Inheritance
Answer: B

47. Which method from Object is used for hashing?
A) toString()
B) equals()
C) hashCode()
D) clone()
Answer: C

48. Which OOP principle may be violated if equals() is overridden but hashCode() is not?
A) Polymorphism
B) Consistency
C) Encapsulation
D) Contract principle
Answer: D

49. Which Java class cannot be extended but can be instantiated?
A) final class
B) abstract class
C) private class
D) protected class
Answer: A

50. Which OOP concept ensures compile-time polymorphism?
A) Method overloading
B) Method overriding
C) Inheritance
D) Abstraction
Answer: A