

# Basic OOP Questions with Answers

## 1. What is Object-Oriented Programming (OOP)?

Answer: OOP is a programming paradigm based on the concept of objects, which can contain data and code to manipulate that data. It promotes modularity and reusability.

## 2. What are the main features of OOP?

Answer: The main features of OOP are Encapsulation, Abstraction, Inheritance, and Polymorphism.

## 3. What is a class in Java?

Answer: A class is a blueprint for creating objects. It defines variables and methods common to all objects of that type.

## 4. What is an object in Java?

Answer: An object is an instance of a class. It represents a real-world entity with state and behavior.

## 5. How is an object created in Java?

Answer: An object is created using the 'new' keyword. Example: `MyClass obj = new MyClass();`

## 6. What is the difference between class and object?

Answer: A class is a template or blueprint, whereas an object is a real instance of a class.

## 7. What is the 'new' keyword in Java?

Answer: The 'new' keyword is used to create new objects in Java.

## 8. What is the 'this' keyword in Java?

Answer: 'this' refers to the current instance of the class. It's used to differentiate instance variables from local variables.

## 9. What is the purpose of a constructor in Java?

Answer: A constructor initializes a newly created object.

## 10. What are the types of constructors in Java?

Answer: There are two types of constructors: default constructor and parameterized constructor.

## 11. Can a constructor be overloaded?

Answer: Yes, constructors can be overloaded by changing the number or type of parameters.

## 12. What is the difference between constructor and method?

Answer: Constructors initialize objects and have no return type. Methods define object behavior and must have a return type.

### **13. What is inheritance in OOP?**

Answer: Inheritance allows a class to inherit properties and methods from another class.

### **14. What is polymorphism in Java?**

Answer: Polymorphism means the ability of a method or object to take many forms. It includes method overloading and overriding.

### **15. What is method overloading and method overriding?**

Answer: Overloading is having multiple methods with the same name but different parameters. Overriding means redefining a superclass method in a subclass.

### **16. What is encapsulation and how is it implemented in Java?**

Answer: Encapsulation is wrapping data and methods into a single unit (class). It's implemented using private variables and public getters/setters.

### **17. What is abstraction in Java?**

Answer: Abstraction hides complex implementation details and shows only essential features. It is achieved using abstract classes and interfaces.

### **18. What is the Object class in Java?**

Answer: The Object class is the root class of all Java classes. Every class in Java inherits from it directly or indirectly.

### **19. What are some commonly used methods of Object class?**

Answer: Some common methods are toString(), equals(), hashCode(), clone(), and getClass().

### **20. How is the Object class the superclass of all classes in Java?**

Answer: Java uses single inheritance. If a class does not extend another class explicitly, it implicitly extends the Object class.