# Dart OOP Theory Questions

### 21. What is inheritance?

Inheritance is a feature in object-oriented programming where a class (child) can use the properties and methods of another class (parent).

### 22. Which inheritance is not supported by Dart? Why?

Dart does not support multiple inheritance using classes. This is to avoid confusion and conflicts when two parent classes have same method or variable names.

### B3. What is advantage of inheritance?

Inheritance helps in code reuse. You don’t have to write the same code again. It also helps in making code more organized and structured.

### 23. Difference between inheritance and encapsulation.

- Inheritance is about reusing code from parent to child class.  
- Encapsulation is about hiding data using private variables and methods to protect data from outside access.

### B5. Difference between inheritance and abstraction.

- Inheritance is used to reuse existing functionality.  
- Abstraction is used to hide implementation details and show only important parts to the user.

### 24. Difference between inheritance and polymorphism

- Inheritance allows a child to use parent’s methods.  
- Polymorphism means one method can behave differently in different classes (example: overriding).

### 25. Can we override static method in Dart?

No, static methods belong to the class, not to objects. So, they cannot be overridden.

### 26. Can we overload static method in Dart?

No, Dart does not support method overloading (same method name with different parameters).

### 27. Can a class implement more than one interface?

Yes, in Dart a class can implement multiple interfaces.

### B10. Can a class extend more than one class in Dart?

No, a class can extend only one class. Dart does not allow multiple class inheritance.

### 28. Can an interface extend more than one interface in Dart?

Yes, interfaces can extend multiple interfaces.

### 29. What will happen if a class implements two interfaces and they both have a method with same name and signature?

The class must provide one implementation for that method. Dart expects you to write it clearly to avoid confusion.

### 30. Can we pass an object of a subclass to a method expecting an object of the super class?

Yes, because subclass is a type of superclass.

### B14. Are static members inherited to sub classes?

No, static members are not inherited, they belong to the class directly.

### 31. What happens if the parent and the child class have a field with same identifier?

The child’s field hides the parent’s field. You can still access parent’s field using super.

### B16. Are constructors and initializers also inherited to sub classes?

No, constructors are not inherited. You need to define constructors in child class separately.

### 32. How do you restrict a member of a class from inheriting by its sub classes?

Make the member private by adding underscore \_ before its name. Private members are not inherited outside the file.

### 33. How do you implement multiple inheritance in Dart?

You can use interfaces or mixins to get multiple inheritance-like behavior.

### 34. Can a class extend by itself in Dart?

No, a class cannot extend itself. It will cause an error.

### 35. How do you override a private method in Dart?

You cannot override private methods if they are in different files. Only public methods can be overridden.

### 36. When to overload a method in Dart and when to override it?

- Overloading is not supported in Dart.  
- Override when you want to change the behavior of a method in child class.

### 37. What the order is of extends and implements keyword on Dart class declaration?

Always use:  
class A extends B implements C, D  
(First extends, then implements)

### 38. How do you prevent overriding a Dart method without using the final modifier?

Dart doesn’t provide other direct ways. Using final is the correct way to prevent overriding.

### 39. What are the rules of method overriding in Dart?

- Method name and signature must be same.  
- Use @override annotation.  
- Can only override instance methods, not static.

### 40. Difference between method overriding and overloading in Dart.

- Overriding = redefining parent method in child class.  
- Overloading = not supported in Dart.

### 41. What happens when a class implements two interfaces and both declare field (variable) with same name?

You must manually define that variable in your class. Dart doesn’t automatically handle field conflicts.

### 42. Can a subclass instance method override a superclass static method?

No, static methods cannot be overridden.

### 43. Can a subclass static method hide superclass instance method?

Yes, but it's not recommended. It can confuse the code, so avoid doing it.

### 44. Can a superclass access subclass member?

No, superclass cannot access subclass members directly.

### 45. Difference between object-oriented and object-based language.

- Object-oriented languages (like Dart, Java) support inheritance, polymorphism, encapsulation, and abstraction.  
- Object-based languages (like JavaScript) support only objects, not inheritance using classes.