

## Assignment - 18

### (Java OOPs)

#### 1. What is Inheritance in java?

Ans: Inheritance is one of the four pillars of Object Oriented Programming. When one class acquires the properties of another class, the process is called Inheritance

#### 2. What is SuperClass and SubClass?

Ans: Super Class also known as Parent Class are those class whose properties get inherited or acquired by another class.

Sub Class also known as Child Class who acquires the properties of another class(Parent Class).

#### 3. How is Inheritance implemented or achieved in Java?

Ans: Inheritance is achieved by “**extends**” keywords in Java, which creates an “**is-a relationship**” between different classes.

#### 4. What is Polymorphism?

Ans: If one thing exist in more than one form, it is called Polymorphism. Polymorphism is a greek word, where poly means “many” and morphism means “structure of forms”.

There are two types of polymorphism:-

- a). Static or Compile time polymorphism
- b). Dynamic or Runtime polymorphism

#### 5. Differentiate between Method Overloading and Method Overriding?

Ans: Method Overloading : The process of extending the existing method functionality with new functionality is called method overloading.

Method Overriding : The process of replacing the existing method functionality with new functionality is called method overriding.

#### 6. What is Abstraction in Java explain with example?

Ans: Abstraction is a process of hiding the implementation details and showing only functionality to the user. Abstraction can be achieved by “**abstract**” keyword in java.

```
ex: abstract class Aeroplane4{
    abstract public void takeoff();
    abstract public void fly();
    public void landing(){
        System.out.println("Plane is landing:");
    }
}
class PassengerPlane4 extends Aeroplane4
{
    public void takeoff(){
        System.out.println("PassengerPlane requires longer runway:");
    }
    public void fly(){
        System.out.println("PassengerPlane flies at lower height:");
    }
}
public class Test1 {
    public static void main(String[] args) {
        Aeroplane4 ref2 = new PassengerPlane4();
        ref2.takeoff();
        ref2.fly();
        ref2.landing();
    }
}
```

## **7. What is the difference between an abstract method and final method in Java?**

Ans: abstract methods are those method which has method signatures but don't have a body or implementation.

final methods are those methods whose implementations once declared in parent class cannot be override in child classes.

## **8. What is final Class in Java?**

Ans: If a class is marked "final" then the class won't participate in inheritance, if we try to do so it would result in "CompileTimeError", such class are called final class in Java.

ex: final class Employee{  
}

## **9. Differentiate between Abstraction and Encapsulation?**

Ans: Encapsulation : refers to the binding of data members and methods into a single unit and to provide controlled access to the data members and methods.

Abstraction : refers to hiding the implementation part whereas showing the only functionality of the program.

## **10. Difference between Runtime Polymorphism and CompileTime Polymorphism explain with example?**

Ans: CompileTime polymorphism is also known as static binding , early binding or overloading as well, in which the call is resolved by the compiler.

It provides faster execution as the method that needs to be executed is known early at compile time.

It can be achieved by method overloading, where more than one methods shares the same name with different parameters.

RunTime Polymorphism is also known as dynamic binding, late binding or overriding as well, in which the call is not resolved by the compiler.

It provides slow execution as compared to CompileTime Polymorphism because the method that has to be executed is known at runtime.

It can be achieved by method overriding, where same method with same parameters or signatures but associated with compared, different classes.