MCQs BANK

Object Oriented Programming

Topic: Abstract Classes

MCQs BANK No.: 7

Instructions:

This MCQs Bank contains question and solution on adjacent(even-odd) pages. First try to solve the MCQ by yourself, then look for the solution.

Best viewed in “single page view” in PDF viewer.

MCQ No: 1

When the keyword _____ appears in a class definition, it means that zero or more of it's methods are abstract.

a) abstract
b) default
c) static
d) public

MCQ No: 1 (Solution)

Ans: a) abstract

Explanation:

When the keyword abstract appears in a class definition, it means that zero or more of it's methods are abstract.

Abstract class is a restricted class that cannot be used to create objects (to access it, it must be inherited from another class).

Abstract method can only be used in an abstract class, and it does not have a body. The body is provided by the subclass (inherited from).

MCQ No: 2

An _____ method has no body. Fill in the blank.

a) static
b) abstract
c) private
d) public

MCQ No: 2 (Solution)

Ans: b) abstract

Explanation: An abstract method has no body. Some of the subclass has to override it and provide the implementation.

Abstract methods are declaration only and it will not have implementation. It will not have a method body. A Java class containing an abstract class must be declared as abstract class.

MCQ No: 3

Objects cannot be created out of abstract class. True or False

a) True
b) False

MCQ No: 3 (Solution)

Ans: a) True

Explanation:

Objects cannot be created out of abstract class. Abstract classes basically provide a guideline for the properties and methods of an object.

MCQ No: 4

An abstract class, which declared with the “abstract” keyword, cannot be instantiated. True or False?

a) True

b) False

MCQ No: 4 (Solution)

Ans: a) True

Explanation:

An abstract class, which declared with the "abstract" keyword, cannot be instantiated. This is because in abstract class the methods are declared only without defining them.

Abstract classes cannot be instantiated, but they can be sub classed.

MCQ No: 5

In order to use abstract classes, they have to be _____ .
Fill in the blank.

a) subclassed
b) sub-divided
c) overridden
d) overloaded

MCQ No: 5 (Solution)

Ans: a) subclassed

Explanation: In order to use abstract classes, they have to be subclassed. There are situations in which you want to define a superclass that declares the structure of a given abstraction without providing a complete implementation of every method. That is, sometimes you want to create a superclass that only defines generalized form that will be shared by all of its subclasses, leaving it to each subclass to fill in the details.

MCQ No: 6

_____ are those methods that must be overridden by subclasses because they have no implementation specified in the superclass. Fill in the blank.

a) default methods
b) abstract methods
c) static methods
d) hidden methods

MCQ No: 6 (Solution)

Ans: b) abstract methods

Explanation:

Consider a class Triangle. It has no meaning if area( ) is not defined. In this case, you want some way to ensure that a subclass does, indeed, override all necessary methods. Java's solution to this problem is the abstract method. You can require that certain methods be overridden by subclasses by specifying the abstract type modifier.

These methods are sometimes referred to as subclasser responsibility because they have no implementation specified in the superclass. Thus, a subclass must override them—it cannot simply use the version defined in the superclass.

MCQ No: 7

The correct way of declaring an abstract method is

a) abstract return_type method_name(parameter-list);
b) return_type method_name(parameter-list) abstract ;
c) return_type abstract method_name(parameter-list);
d) all are correct

MCQ No: 7 (Solution)

Ans: a) abstract return_type method_name(parameter-list);

Explanation:

The correct way of declaring an abstract method is :

abstract return_type method_name(parameter-list);

As you can see, no method body is present. Any class that contains one or more abstract methods must also be declared abstract.

MCQ No: 8

There can be no objects of an abstract class. True or False

a) True
b) False

MCQ No: 8 (Solution)

Ans: a) True

Explanation:

There can be no objects of an abstract class. That is, an abstract class cannot be directly instantiated with the new operator. Such objects would be useless, because an abstract class is not fully defined.

MCQ No: 9

Can you declare abstract constructors, or abstract static methods ?

a) Yes

b) No

MCQ No: 9 (Solution)

Ans: b) No

Explanation: You cannot declare abstract constructors, or abstract static methods. Constructors are invoked automatically when objects of a class is created using new operator. As an abstract class cannot be directly instantiated with the new operator so you cannot declare abstract constructors. static methods are class methods, that is shared by multiple objects(instances of the class) of a class, as an abstract class cannot be directly instantiated so it is not possible to declare abstract static methods.

MCQ No: 10

Any subclass of an abstract class must either implement all of the abstract methods in the superclass, or be itself declared abstract. True or False?

a) True
b) False

MCQ No: 10 (Solution)

Ans: a) True

Explanation:

Any subclass of an abstract class must either implement all of the abstract methods in the superclass, or be itself declared abstract.

MCQ No: 11

Is it possible to create a reference to an abstract class so that it can be used to point to a subclass object ?

a) Yes, Possible

b) No, Not Possible

MCQ No: 11 (Solution)

Ans: a) Yes, Possible

Explanation:

Although abstract classes cannot be used to instantiate objects, they can be used to create object references, because Java's approach to run-time polymorphism is implemented through the use of superclass references. Thus, it must be possible to create a reference to an abstract class so that it can be used to point to a subclass object. It is through superclass reference variables that overridden methods are resolved at run time.

MCQ No: 12

Methods declared as final cannot be overridden. True or False

a) True
b) False

MCQ No: 12 (Solution)

Ans: a) True

Explanation:

While method overriding is one of Java's most powerful features, there will be times when you will want to prevent it from occurring. To disallow a method from being overridden, specify final as a modifier at the start of its declaration.

Methods declared as final cannot be overridden. If you attempt to do so, a compile-time error will result.

MCQ No: 13

How would you will prevent a class from being inherited?

a) By making the class abstract
b) By adding a comment statement "Don't Inherit"
c) Precede the class declaration with final
d) Requesting others to not inherit the class

MCQ No: 13 (Solution)

Ans: c) Precede the class declaration with final

Explanation: Sometimes you will want to prevent a class from being inherited. To do this, precede the class declaration with final.Declaring a class as final implicitly declares all of its methods as final, too.

Here is an example of a final class:

```
final class A {
// ...
}
// The following class is illegal.
class B extends A { // ERROR! Can't
subclass A
// ...
}
```

MCQ No: 14

It is illegal to declare a class as both abstract and final. Yes or No?

a) Yes, it is illegal
b) No, it is completely legal.

MCQ No: 14 (Solution)

Ans: a) Yes, it is illegal

Explanation:

It is illegal to declare a class as both abstract and final since an abstract class is incomplete by itself and relies upon its subclasses to provide complete implementations.