**Programming with Classes**

**Multiple Choice** *Identify the choice that best completes the statement or answers the question.*

\_\_\_\_ 1. Inheritance is an example of what type of relationship?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | is-a | c. | was-a |
| b. | has-a | d. | had-a |

\_\_\_\_ 2. Any new class you create from an existing class is called a(n) \_\_\_\_.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | base class | c. | derived class |
| b. | superclass | d. | extended class |

\_\_\_\_ 3. Suppose there are three classes named Shape, Circle, and Square. What is the most likely relationship between them?

|  |  |
| --- | --- |
| a. | Square is a superclass, and Shape and Circle are subclasses of Square. |
| b. | Shape is a superclass, and Circle and Square are subclasses of Shape. |
| c. | Shape, Circle, and Square are all sibling classes. |
| d. | These three classes cannot be related. |

\_\_\_\_ 4. What is the correct syntax for defining a new class Parakeet based on the superclass Bird?

|  |  |
| --- | --- |
| a. | class Parakeet isa Bird{ } |
| b. | class Bird defines Parakeet{ } |
| c. | class Bird hasa Parakeet{ } |
| d. | class Parakeet extends Bird{ } |

\_\_\_\_ 5. A subclass can directly access \_\_\_\_.

|  |  |  |  |
| --- | --- | --- | --- |
| a. | public members of a superclass | c. | all members of a superclass |
| b. | private members of a superclass | d. | none of the members of a superclass |

\_\_\_\_ 6. What type of inheritance does Java support?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | single inheritance | c. | multiple inheritance |
| b. | double inheritance | d. | Java does not support inheritance. |

\_\_\_\_ 7. If class Dog has a subclass Retriever, which of the following is true?

|  |  |
| --- | --- |
| a. | Because of single inheritance, Dog can have no other subclasses. |
| b. | Because of single inheritance, Retriever can extend no other class except Dog. |
| c. | The relationship between these classes implies that Dog “is-a” Retriever. |
| d. | The relationship between these classes implies that Retriever “has-a” Dog. |

\_\_\_\_ 8. Consider the following class definitions.

public class BClass {

private int x;

private double y;

public void print() { }

}

public class DClass extends BClass

{

private int a;

private int b;

public void print() { }

}

Suppose that you have the following statement.

DClass dObject = new DClass();

How many instance variables does dObject have?

|  |  |  |  |
| --- | --- | --- | --- |
| a. | zero | c. | three |
| b. | two | d. | four |

\_\_\_\_ 9. Consider the following class definitions.

public class BClass

{

private int x;

public void set(int a)

{

x = a;

}

public void print()

{

System.out.print(x);

}

}

public class DClass extends BClass

{

private int y;

public void set(int a, int b)

{

//Postcondition: x = a; y = b;

}

public void print(){ }

}

Which of the following correctly redefines the method print of DClass?

(i)

public void print()

{

System.out.print(x + " " + y);

}

(ii)

public void print()

{

super.print();

System.out.print(" " + y);

}

a. Only (i) b. Only (ii)

c. Both (i) and (ii) d. None of these