**Starting Out with Python 4e (Gaddis)**

**Chapter 11 Inheritance**

**TRUE/FALSE**

1. New attributes and methods may be added to a subclass.

ANS: T

2. One problem with using a UML diagram is that there is no way to indicate inheritance.

ANS: F

3. When a class inherits another class, it is required to use all the data attributes and methods of the superclass.

ANS: F

4. Polymorphism works on any two class methods that have the same name.

ANS: T

5. A superclass inherits attributes and methods from its subclasses without any of them having to be rewritten.

ANS: F

6. A subclass may not override any method other than the **\_\_init\_\_** method.

ANS: F

7. Each subclass has a method named **\_\_init\_\_** that overrides the superclass's **\_\_init\_\_** method.

ANS: T

8. In a UML diagram depicting inheritance, you only need to write the name of the subclass.

ANS: F

9. An "is a" relationship exists between a grasshopper and a bumblebee.

ANS: F

10. An "is a" relationship exists between a wrench and a tool.

ANS: T

**MULTIPLE CHOICE**

1. \_\_\_\_\_\_\_\_\_\_ allows a new class to inherit members of the class it extends.

|  |  |
| --- | --- |
| a. | Encapsulation |
| b. | Attributes |
| c. | Methods |
| d. | Inheritance |

ANS: D

2. What gives a program the ability to call the correct method depending on the type of object that is used to call it?

|  |  |
| --- | --- |
| a. | Polymorphism |
| b. | Inheritance |
| c. | Encapsulation |
| d. | Methods |

ANS: A

3. What does a subclass inherit from a superclass?

|  |  |
| --- | --- |
| a. | instances and attributes |
| b. | objects and methods |
| c. | methods and instances |
| d. | attributes and methods |

ANS: D

4. In a UML diagram, what does the open arrowhead point to?

|  |  |
| --- | --- |
| a. | the superclass |
| b. | the subclass |
| c. | the object |
| d. | a method |

ANS: A

5. When there are several classes that have many common data attributes, it is better to write a(n) \_\_\_\_\_\_\_\_\_\_ to hold all the general data.

|  |  |
| --- | --- |
| a. | superclass |
| b. | subclass |
| c. | object |
| d. | method |

ANS: A

6. In an inheritance relationship, what is a specialized class called?

|  |  |
| --- | --- |
| a. | a superclass |
| b. | a subclass |
| c. | an object |
| d. | an instance |

ANS: B

7. Base classes are also called

|  |  |
| --- | --- |
| a. | superclasses |
| b. | derived classes |
| c. | subclasses |
| d. | class instances |

ANS: A

8. What is the relationshop called in which one object is a specialized version of another object?

|  |  |
| --- | --- |
| a. | parent-child |
| b. | node-to-node |
| c. | is a |
| d. | class-subclass |

ANS: C

9. \_\_\_\_\_\_\_\_\_\_ has the ability to define a method in a subclass and then define a method with the same name in a superclass.

|  |  |
| --- | --- |
| a. | Inheritance |
| b. | Encapsulation |
| c. | Polymorphism |
| d. | the 'is a' relationship |

ANS: C

10. In the following line of code, what is the name of the subclass?

**class Rose(Flower):**

|  |  |
| --- | --- |
| a. | **Rose** |
| b. | **Flower** |
| c. | **Rose(Flower)** |
| d. | None of these |

ANS: A

11. In the following line of code, what is the name of the base class?

**class Python(Course):**

|  |  |
| --- | --- |
| a. | **Python** |
| b. | **Course** |
| c. | **Python(Course)** |
| d. | None of these |

ANS: B

12. Given the following line of code, in a UML diagram, what would the open arrowhead point to?

**class Celery(Vegetable):**

|  |  |
| --- | --- |
| a. | **Celery** |
| b. | **Vegetable** |
| c. | **class** |
| d. | **Celery(Vegetable)** |

ANS: B

13. Of the two classes, **Cherry** and **Flavor**, which would most likely be the subclass?

|  |  |
| --- | --- |
| a. | **Cherry** |
| b. | **Flavor** |
| c. | either one |
| d. | neither; these are inappropriate class or subclass names |

ANS: A

14. Which method can you use to determine whether an object is an instance of a class?

|  |  |
| --- | --- |
| a. | **isinstance** |
| b. | **isclass** |
| c. | **isobject** |
| d. | **issubclass** |

ANS: A

15. Which of the following is the correct syntax for defining a class, **table**, which inherits from the **furniture** class?

|  |  |
| --- | --- |
| a. | **class furniture[table]:** |
| b. | **class table.furniture:** |
| c. | **class furniture(table):** |
| d. | **class table(furniture):** |

ANS: D

16. Given the following beginning of a class definition for a superclass named **clock**, how many accessor and mutator methods will be needed to complete the class definition?

**class clock:**

**def \_\_init\_\_(self, shape, color, price):**

**self.\_shape = shape**

**self.color = color**

**self.price = price**

|  |  |
| --- | --- |
| a. | 1 mutator, 1 accessor |
| b. | 3 mutator, 4 accessor |
| c. | 3 mutator, 3 accessor |
| d. | 4 mutator, 5 accessor |

ANS: C

**COMPLETION**

1. \_\_\_\_\_\_\_\_\_\_ allows subclasses to have methods with the same names as methods in their superclasses.

ANS: Polymorphism

2. The \_\_\_\_\_\_\_\_\_\_ function determines whether or not an object is an instance of a specific class or an instance of a subclass of that class.

ANS: **isinstance**

3. A subclass is also called a(n) \_\_\_\_\_\_\_\_\_\_ class.

ANS: derived

4. A superclass is also called a(n) \_\_\_\_\_\_\_\_\_\_ class.

ANS: base

5. When a subclass method has the same name as a superclass method, the subclass method \_\_\_\_\_\_\_\_\_\_ the superclass method.

ANS: overrides

6. In an inheritance relationship, the extended class is called the \_\_\_\_\_\_\_\_\_\_.

ANS: subclass

7. New attributes and methods may be added to a subclass which makes it a(n) \_\_\_\_\_\_\_\_\_\_ version of the superclass.

ANS: specialized

8. In an inheritance relationship, a minivan can be thought of as a(n) \_\_\_\_\_\_\_\_\_\_\_ of the vehicles class.

ANS: subclass, derived class

9. The term \_\_\_\_\_\_\_\_\_\_\_ refers to an object's ability to take different forms.

ANS: polymorphism

10. In a UML diagram, a line with an open arrowhead from a subclass to a superclass indicates \_\_\_\_\_\_\_\_\_\_\_.

ANS: inheritance