TEST BANK

Data Structures Using C++

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TRUE/FALSE

1. The base class inherits all its properties from the derived class.

    ANS: F   PTS: 1   REF: 66

2. Private members of a base class can be accessed by a derived class.

    ANS: F   PTS: 1   REF: 67

3. Inheritance implies an "is-a" relationship.

    ANS: T   PTS: 1   REF: 66

4. A derived class cannot directly access public members of a base class.

    ANS: F   PTS: 1   REF: 67

5. The derived class can redefine public member functions of a base class.

    ANS: T   PTS: 1   REF: 67

6. In single inheritance, the derived class is derived from a single base class.

    ANS: T   PTS: 1   REF: 66

7. In multiple inheritance, the derived class is derived from more than one base class.

    ANS: T   PTS: 1   REF: 66

8. Overriding a member function is the same as redefining it.

    ANS: T   PTS: 1   REF: 69

9. Redefining a member function is the same as overloading the member function.

    ANS: F   PTS: 1   REF: 69

10. In C++, you must always use the reserved word super to use a method from the derived class in the
    base class.

    ANS: F   PTS: 1   REF: 70

11. A derived class inherits all its data members from the base class; it has none of its own.

    ANS: F   PTS: 1   REF: 71

12. A derived class can directly access protected members of a base class.

    ANS: T   PTS: 1   REF: 79

13. Constructors of the derived class can (directly) initialize only the public data members of the derived class.

    ANS: F   PTS: 1   REF: 71

14. Header files of new classes contain commands that tell the computer where to look for definitions of the base class.

    ANS: T   PTS: 1   REF: 77

15. Composition is a "has-a" relationship.

    ANS: T   PTS: 1   REF: 80

16. In C++ the user can create new operators.

    ANS: F   PTS: 1   REF: 87

17. Default arguments can be used with an overloaded operator.

    ANS: F   PTS: 1   REF: 88

18. The meaning of how an operator works with built-in types remains the same.

    ANS: T   PTS: 1   REF: 88

19. In C++, every object of a class maintains a hidden pointer to itself, and the name of this pointer is "hidden".

    ANS: F   PTS: 1   REF: 88

20. A friend function is a member function of a class and has access to the class's private data members.

    ANS: F   PTS: 1   REF: 92

21. When writing the definition of a friend function, the name of the class and the scope resolution operator do not precede the name of the friend function in the function heading.

    ANS: T   PTS: 1   REF: 92

22. The function the overloads any of the operators (), [], ->, or = for a class must be declared as a member of the class.

    ANS: T   PTS: 1   REF: 96

23. For efficiency purposes, wherever possible you should overload operators as nonmember functions.

    ANS: F   PTS: 1   REF: 103

24. A class with multiple constructors is an example use of overloading a function.

    ANS: T   PTS: 1   REF: 109

25. By using templates, you can write a single code segment for a set of related functions, called a function template.

    ANS: T   PTS: 1   REF: 110

MULTIPLE CHOICE

1. Inheritance is an example of the _____ relationship.
   a. is-a   c. was-a
   b. has-a   d. had-a

   ANS: A   PTS: 1   REF: 66

2. Any new class you create from an existing class is called a(n) _____.
   a. base class   c. derived class
   b. base class   d. extended class

   ANS: C   PTS: 1   REF: 66

3. A derived class can directly access _____.
   a. public members of a base class   c. all members of a base class
   b. private members of a base class   d. none of the members of a base class

   ANS: A   PTS: 1   REF: 67

4. If there are three classes, Shape, Circle and Square, what is the most likely relationship among them?
   a. Square is a base class, and shape and circle are derived classes of Square.
   b. Shape is a base class, and circle and square are derived classes of Shape.
   c. Shape, circle and square are all sibling classes.
   d. These three classes cannot be related.

   ANS: B   PTS: 1   REF: 67

5. If class Dog has a derived class Retriever, which of the following is true?
   a. In the case of single inheritance, Dog can have no other derived classes.
   b. In the case of single inheritance, Retriever is derived from 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.

   ANS: B   PTS: 1   REF: 66

6. When you declare a derived class object, this object inherits the members of the base class. However, the derived class object cannot directly access the _____.
   a. private data members of the base class
   b. its own private data members
   c. friend functions
   d. public data members of the base class

   ANS: A   PTS: 1   REF: 71

7. A base class wants to allow a derived class to access one of its data members. However, the base class does not want this member to be directly accessed outside the class. The base class should declare the member using the _____ access specifier.
   a. friend   c. public
   b. protected   d. private

ANS: B   PTS: 1   REF: 79

8. Composition is another way to relate two classes. In composition, one or more members of a class are objects of another class type. Composition is a(n) _____relation.
   a. is a   c. was a
   b. has a   d. had a

   ANS: A   PTS: 1   REF: 80

   Consider the class clockType and the following statements:
       clockType myClock(8,23,34);
       clockType yourClock(4,5,30);
   Now consider the following statement:
       if(myClock==yourClock) ...

9. For the test above to work properly the programmer must extend the definition of ==.   In C++, this is called _____.
   a. inheritance   c. operator overloading
   b. composition   d. operator instantiation

   ANS: C   PTS: 1   REF: 87

10. Which of the following is NOT a reserved word in C++ ?
    a. operator   c. class
    b. friend   d. member

    ANS: D   PTS: 1   REF: 82

11. With templates, you can write a single code segment for a set of related functions, called a _____.
    a. function template   c. templateType
    b. function type   d. class template

    ANS: A   PTS: 1   REF: 110

    The syntax of the function template is
        template<classType>
        function definition;
    where Type is referred to as a formal parameter of the template. It is used to specify the type of parameters of the function and the return type of the function, and to declare variables within the function. Look at the following code:

    ```
    template<classType>
    Type larger(Type x,Type y)
    {
    if(x>=y)
    return x;
    else
    return y;
    }
    ```

12. This code defines the function template called _____.
    a. x   c. larger
    b. y   d. Type

    ANS: C   PTS: 1   REF: 110

13. Based on the template above, what will the following code output to the screen:
cout << larger(5,6) << endl; ?

    a. x   c. 5
    b. y   d. 6

ANS: A   PTS: 1   REF: 110

14. If you omit the body of the function in the function template definition, the function template serves as the ____.

    a. constructor   c. prototype
    b. destructor   d. definition

ANS: C   PTS: 1   REF: 111

15. Like function templates, ____ are used to write a single code segment for a set of related classes.

    a. function types   c. inherited classes
    b. class templates   d. protected members

ANS: B   PTS: 1   REF: 112

16. Class templates are called ____types.

    a. data   c. template
    b. parameterized   d. prototype

ANS: B   PTS: 1   REF: 112

17. In a single inheritance, the derived class is derived from ____base class(es).

    a. one   c. three or more
    b. two   d. virtual

ANS: A   PTS: 1   REF: 67

The general syntax to define a derived class is:

```
class className:memberAccessSpecifier baseClassName
{
    memberlist
};
```

18. As shown in the figure above, memberAccessSpecifier is ____.

    a. public   c. private
    b. protected   d. public, protected or private

ANS: D   PTS: 1   REF: 67

19. When initializing the object of a derived class, the ____ of the base class is executed first.

    a. destructor   c. copy constructor
    b. constructor   d. friend function

ANS: B   PTS: 1   REF: 71

20. Passing a parameter to a class template has an effect at ____ time.

    a. run   c. compile
    b. execution   d. debug

ANS: A   PTS: 1   REF: 114

ANS: A   PTS: 1   REF: 114