

一、单项选择题 (本大题共 30 小题, 每小题 2 分, 共 60 分)

提示: 在每小题列出的四个备选项中只有一个是符合题目要求的, 请将其代码填写在下表中。错选、多选或未选均无分。

1.Which method must exist in every Java application?

- (A) paint
- (B) main
- (C) begin
- (D) init

2.What will be output caused by the execution of the following Java program segment? String

```
name = "Elvis"; System.out.print(name + "was here");
```

- (A) name was here
- (B) name + was here
- (C) Elviswas here
- (D) Elvis was here

3.A difference between the methods print and println of the class java.io.PrintWriter is that ()

- (A) println inserts a new line at the beginning of its output, but print does not
- (B) print inserts a new line at the beginning of its output, but println does not
- (C) print appends a new line to the end of its output, but println does not
- (D) println appends a new line to the end of its output, but print does not

4.Consider the following Java program segment.

```
int x = 5;  
  
int y = 2;  
  
System.out.println(x + "1" + y);
```

Which of the following statements is true about the program segment?

- (A) The output caused by the code will be 8.
- (B) The output caused by the code will be 5 1 2.
- (C) The code will cause a compilation error.
- (D) The output caused by the code will be 512.

5.What is the name of the JDK program that processes Javadoc comments?

- (A) javadoc
- (B) java
- (C) javac
- (D) javacom

6.According to the Java code conventions, files that contain Java source code have the suffix _____, and compiled bytecode files have the suffix _____.

- (A) .java, .class
- (B) .class, .java
- (C) .class, .javac
- (D) .javac, .class

7.Given the following code, what value will be output by the last statement?

```
StringTokenizer st = new StringTokenizer("this is,a,test of tokens", ",");  
  
String s;  
  
int count = 0;  
  
while (st.hasMoreTokens()) {  
  
    s = st.nextToken();  
  
    ++count;  
  
}  
  
stdOut.println(count);
```

- (A) 1
- (B) 6
- (C) 3
- (D) 4

8.Which of the following statements is true of the conventions outlined by Sun Microsystems in the document entitled Code Conventions for the Java Programming Language?

I.They define a standard interface definition language that must be used for all Java classes.

II.They provide recommendations intended to make source code easier to read and understand.

III.They describe one mechanism for network communication between Java and C++ programs.

- (A) II only
- (B) I, II, and III
- (C) I and III only
- (D) III only

9.UML class diagrams can describe which of the following?

I.The internal structure of classes

II.Relationships between classes

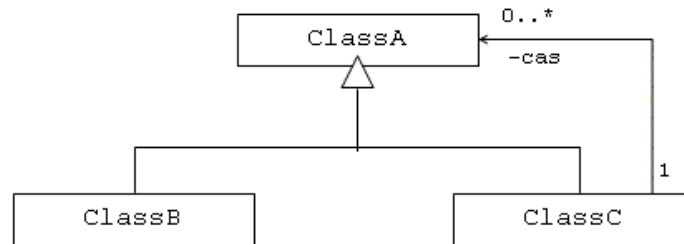
- (A) I only
- (B) I and II
- (C) None
- (D) II only

10.If a class has an association with itself, then the class contains

- (A) its own superclass

- (B) an attribute that references an object of the same class
- (C) a method that calls another method within the same class
- (D) a method that calls itself

11. Consider the following UML class diagram.



According to the diagram, which of the following statements is (are) true?

- I. ClassB is a specialization of ClassA.
- II. ClassA is a generalization of ClassC.
- III. ClassC is involved in a self-containment loop.

- (A) I and III only
- (B) II and III only
- (C) I, II, and III
- (D) I and II only

12. From within a child class, its parent class is referred to via the keyword

- (A) Super
- (B) This
- (C) Parent
- (D) base

13. Consider the following UML class diagram.

According to the diagram, which of the following statements is true?

- (A) ClassA and ClassB each contain at least one reference to an instance of ClassC.

- (B) ClassB and ClassC are both subclasses of ClassA.
- (C) ClassA is composed of one instance of ClassB and one or more instances of ClassC.
- (D) ClassB has a one-to-one association with ClassA and a one-to-many association with ClassC.

14.If the method `int sum(int a, int b)` is defined in a Java class C, which of the following methods cannot coexist as a different method in class C?

- (A) `int sum(float a, int b)`
- (B) `float sum(int x, float y)`
- (C) `int sum(int x, int y)`
- (D) `int sum(int x, float y)`

15.Which is a Java access modifier used to designate that a particular data field will not be inherited by a subclass?

- (A) `protected`
- (B) `default`
- (C) `final`
- (D) `private`

16.Which of the following categorizations can be applied to both the data fields and the methods in a Java class?

- (A) `default` and `non-default`
- (B) `abstract` and `non-abstract`
- (C) `static` and `non-static`
- (D) `native` and `non-native`

17.A Java array that contains n components will be indexed from ____ through ____.

- (A) 1, n-1

- (B) 0, n
- (C) 1, n
- (D) 0, n-1

18. Consider the following Java program segment.

```
int[] arr;  
  
arr = new int[3];  
  
arr[2]=19;  
  
arr[1]=17;  
  
arr[0]=15;
```

Which of the following Java statements is syntactically correct and semantically identical to the program segment?

- (A) `int[] arr= {15, 17, 19};`
- (B) `int arr = {15, 17, 19};`
- (C) `int[3] arr = {15, 17, 19};`
- (D) `int arr[3]= {15, 17, 19};`

19. Consider the following Java program segment.

```
String[] str = {"Three","Two","One"};  
  
for (int i = 0; i < str.length; ++i) {  
  
System.out.println(str[i]+"/");  
  
}
```

What will be output upon execution of the program segment?

- (A) Three,Two,One
- (B) One/Two/Three/
- (C) Three/Two/One/

(D) One,Two,Three

20.The subclass of an abstract class must

- (A) be abstract
- (B) be abstract or implement all of the parent's abstract methods
- (C) be abstract and implement all of the parent's abstract methods
- (D) implement all of the parent's abstract methods

21.Consider the following Java program fragment.

```
public void drive(Vehicle v) {  
    ...  
}  
...  
drive(obj);
```

The method call drive(obj) is valid if obj is which of the following?

- I. A descendent of class Vehicle
- II. An ancestor of class Vehicle
- III. An object of class Vehicle

- (A) III only
- (B) I and III only
- (C) I, II, and III
- (D) II and III only

22.Which of the following statements is (are) true about interfaces in Java?

- I. Interfaces can extend other interfaces.
- II. Interfaces can contain data fields.

- (A) None

(B) II only

(C) I only

(D) I and II

23.Data fields in an interface implicitly have ____ access in Java.

(A) public

(B) private

(C) abstract

(D) protected

24.A design pattern is typically used to

(A) ensure that code executes at optimal speed during runtime

(B) reduce the number of classes in the design of a program

(C) describe a practical solution to a common design problem

(D) allow the use of object-orientated concepts in a language that is not object-oriented

25.The Strategy design pattern is likely to be useful when implementing which of the following?

I. An application that offers several alternate sorting algorithms

II. A simple class to store the address of an organization of which only one instance can be instantiated

(A) None

(B) I and II

(C) I only

(D) II only

26.Which of the following statements is (are) true in Java?

I. All of the methods in an abstract class must be abstract.

II. All of the methods in an interface must be abstract.

- (A) None
- (B) I and II
- (C) I only
- (D) II only

27.If a file opened for reading does not exist, which of the following events will occur in Java?

- (A) A FileNotFoundException will be raised.
- (B) A new file will be created.
- (C) A NullPointerException will be raised.
- (D) A run-time error will occur.

28.In an object model, the data that an object is responsible for maintaining are represented by

- (A) generalizations
- (B) methods
- (C) attributes
- (D) specializations

29.Which of the following is true about association and aggregation in UML class diagrams?

- (A) Association is a special form of aggregation.
- (B) Association and aggregation have no meaningful relationship.
- (C) Aggregation is a special form of association.
- (D) Association is the opposite of aggregation.

30.Which of the following will be output during execution of the program segment?

- (A) The line of text "default" followed by the line of text "non-default"
- (B) The line of text "non-default" followed by the line of text "default"
- (C) The line of text "non-default"
- (D) The line of text "default"

二、编程题 (本大题共 3 小题, 共 20 分) 。

1 . (5 points) Please write a Java program to output the Prime number from 1 to 100 into console.(Hint : A prime number is a natural number greater than 1 that has no positive divisors other than 1 and itself).

2 . (5 points) Write a class to read a given text file(java.txt) and output the contents to console.
(Hint: BufferedReader, FileInputStream, InputStreamReader).

java.txt: This is a java test

1 2 3 4 5

3 . (10 points)Unit testing is an important aspect of software design. Unit testing is a technique that verifies if a class, or a group of classes, behave as expected. Test code can be added to the class being tested in the method main, or a new class dedicated to testing can be created.

Consider the following class that models a bank account:

```
public class BankAccount {  
  
    /* Balance of the account*/  
  
    private double balance;  
  
    public BankAccount() {  
  
        balance = 0.0;  
  
    }  
  
    public double getBalance() {  
  
        return balance;  
  
    }  
  
    public boolean deposit(double amount) {  
  
        if (amount > 0) {  
  
            balance += amount;  
  
        }  
  
    }  
  
}
```

```
        return true;

    } else {

        return false;

    }

}

public boolean withdraw(double amount) {

    if (amount > 0 && balance >= amount) {

        balance -= amount;

        return true;

    } else {

        return false;

    }

}

}
```

The class BankAccount contains three methods: one to access the account balance; one to deposit money; and another to withdraw money. Methods deposit and withdraw have defensive code: deposit will not update the balance if the specified amount is negative (or zero), while withdraw will not update the balance if the account has insufficient funds.

The method main in the test driver starts with a test case for the BankAccount constructor and the accessor getBalance. It continues with several test cases for the method deposit; the test cases ensure that deposit works correctly with both valid and invalid arguments. It concludes with test cases for withdraw that consider several possible scenarios

三、UML 设计题（本大题共 2 小题，第 1 题 8 分，第 2 题 12 分，共 20 分）。

The supermarket management system tracks the items bought by customers, The system

contains a catalog of the goods owned by the supermarket. The catalog include many kinds of goods items, include the item's commodity code and quantity. All goods items are identified by a commodity code. The information for each item includes title, date, and price. A new goods item can be added, delete to the catalog. We can know how many kinds of goods in this supermarket.

In addition:

- * Any customer can buy many kinds of things from the supermarket, all the goods items are typed on a payment list by the system.
- * The system contains all the payment lists.
- * The payment list include the details of every goods item :commodity code, quantity, unit price, total price.
- * The payment bill include the date and the total money of all the goods listed on it.

In the supermarket management system, the user should be able to :

- * Display the catalog by listing the code, date, price, quantity.
 - * Display a goods item's information.
 - * Display all the payment bill by listing the date and the total money.
 - * Display all the goods items that have been sold by listing the code and quantity.
 - * Display the total money of all the payment bill.
1. Please draw the UML class diagram to model the Supermarket Management System.
 2. Write the classes based on the UML you created, and implement the functions of the classes designed.(12 分)