

# 四川大学期末考试试题（闭卷）

（2017~2018 学年第 2 学期）

A 卷

课程号: 311141040 课程名称: 面向对象程序设计导论 任课教师: \_\_\_\_\_

适用专业年级: 软件工程 2017 级 学号: \_\_\_\_\_ 姓名: \_\_\_\_\_

## 考生承诺

我已认真阅读并知晓《四川大学考场规则》和《四川大学本科学生考试违纪作弊处分规定（修订）》，郑重承诺：

- 1、已按要求将考试禁止携带的文具用品或与考试有关的物品放置在指定地点；
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考生签名: \_\_\_\_\_

题 号	一(60%)	二(25%)	三(15%)
得 分			
卷面总分		阅卷时间	

- 注意事项:**
1. 请务必将本人所在学院、姓名、学号、任课教师姓名等信息准确填写在试题纸和添卷纸上；
  2. 请将答案全部填写在本试题纸上；
  3. 考试结束，请将试题纸、添卷纸和草稿纸一并交给监考老师。

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评阅教师	得分

## 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，请将其代码填写在题后的括号内。错选、多选或未选均无分

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30

- 1、What is the size of a float variable in Java?
  - A. 2 bytes
  - B. 4 bytes
  - C. 8 bytes
  - D. It depends on the compiler setting
- 2、Which of the following statements is (are) true about the use of an asterisk (\*) in a Java import statement?
  - I. It does not incur run-time overhead.
  - II. It can be used to import multiple packages with a single statement.
  - III. It can be used to import multiple classes with a single statement.
  - A. I and III only
  - B. III only
  - C. I only
  - D. I, II, and III

3、What is displayed by

`System.out.println("1" + (2+ 3));`

- A. 6      B. 15      C. 123      D. ClassCastException

4、What is the right way to handle abnormalities in input on Java?

- A. By handling these problems by providing exception handlers  
B. By writing while loops to guard against bad input  
C. By using the class `FileFilter` which gracefully filters out bad input data  
D. By always specifying the `throws` clause in every method header where file I/O is performed

5、According to Javadoc convention, the directive tag used to describe exception should be

- A. an `@throws` tag  
B. an `@version` tag  
C. an `@return` tag  
D. an `@param` tag

6、Which of the following statements about constructors in Java is true.

- A. A class must define at least one constructor  
B. A class can define more than one constructor  
C. A constructor must be defined as `public`  
D. A constructor must be defined as `static`

7、Which of the following is not a method of `java.util.Vector`.

- A. `add(E e)`  
B. `add(int index, E element)`  
C. `insert(int index, E element)`  
D. `contains(Object o)`

Question 8-10 refer to the following code

```
public interface InterfaceA { void methodA(); }
```

```
public interface InterfaceB extends InterfaceA { void methodB(); }
```

```
public class ClassA implements InterfaceA {  
    public void methodA() { System.out.println("ClassA.methodA()"); }  
}
```

```
public class ClassB extends ClassA implements InterfaceB {  
    public void methodB() { System.out.println("ClassB.methodB()"); }  
}
```

8、 Which of the following statements causes a syntax error

- A. InterfaceA obj = new ClassA();
- B. InterfaceB obj = new ClassA();
- C. InterfaceA obj = new ClassB();
- D. InterfaceB obj = new ClassB();

9、 Which method that must be defined in ClassB such that there is no compilation errors?

- A. No particular methods are required
- B. methodA
- C. methodB
- D. Both methodA and methodB

10、 What's the output of the following statements

```
InterfaceB o = new ClassB();  
o.methodA();
```

- A. ClassB.methodA()
- B. ClassA.methodA()
- C. ClassB.methodB()
- D. ClassA.methodB()

11、 Consider the following Java program segment.

```
public class Sample {  
    public Sample() {  
        this(0);  
        System.out.println("default");  
    }  
    public Sample( int value ) {  
        System.out.println("non-default");  
    }  
    public static void main(String[] args) {  
        Sample t = new Sample(0);  
    }  
}
```

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

- A. The line of text "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" followed by the line of text "non-default"

12、 If a class contains a constructor, that constructor will be invoked

- A. each time an object of that class is instantiated
- B. once the first time an object of that class is instantiated
- C. each time an object of that class goes out of scope
- D. once at the beginning of any program that uses that class

13、In Java, `int a = 7/2`, what's the result?

- A. 3
- B. 3.5
- C. 4
- D. None of them

14、Consider the Java program below.

```
import java.util.*;
public class Sample{
    public static void main(String[] args) {
        Vector<String> v = new Vector<String>();
        v.add("one");
        v.add("two");
        System.out.println(v.get(1));
        System.out.println(v.get(2));
    }
}
```

Which of the following is true about the result of executing the program?

- A. The string "two" is printed and a run-time exception terminates execution.
- B. The string "one" is printed and there is no abnormal termination.
- C. The string "two" is printed and there is no abnormal termination.
- D. The string "one" is printed and a run-time exception terminates execution.

15、The method `calc()` is defined as below

```
public boolean calc(int value) {
    return value==2*(value/10+value%10)
}
```

which of the following values will make method `calc()` return true

- A. 128    B. 28    C. 18    D. 8

16、Which of these keywords is used to refer to member of parent class from a child class?

- A. new    B. super    C. this    D. None of the above

17、Consider the following method call, where `v` is an instance of the class

```
java.util.Vector.
v.capacity();
```

This method call returns the number of

- A. bytes used by `v`
- B. the number of elements contained in `v`
- C. return the current capacity of `v`
- D. elements in the vector represented by `v`

18、 Which of the following statements is (are) true about inheritance in Java?

- I. A class can extend more than one abstract class.
  - II. A class can implement more than one interface.
- A. II only    B. None    C. I and II    D. I only

19、 which of the following is the string concatenation operator in Java

- A. &&                      B. &  
C. ++                      D. +

20、 which method must exist in every Java application

- A. begin    B. paint    C. init    D. main

21、 Which of these method of String class can be used to test to strings for equality?

- A. isEqual(Object obj)  
B. isEquals(Object obj)  
C. equal(Object obj)  
D. equals(Object obj)

22、 Which of the following is true about association and aggregation in UML class diagrams

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

23、 What is the ouput of this program

```
class StringClass {  
    public static void main(String args[]) {  
        String obj = "I Like Java";  
        System.out.println(obj.charAt(4));  
    }  
}
```

A. L            B. i    C. k            D. e

24、 Which of the following is (are) true regarding event handling in Java?

- I. When a GUI component is created, the component automatically has the ability to generate events during user interaction.
  - II. Each Listener object must be registered with the specific component object or objects for which the Listener object is to respond.
- A. None    B. II only    C. I only    D. I and II

- 25、 Which of the following is a Java event that is generated when a JButton component is pressed?  
A. ButtonEvent    B. ActionEvent    C. ClickEvent    D. WindowEvent
- 26、 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. II only    B. None    C. I and II    D. I only
- 27、 Which of the following statements about Java classes is (are) accurate?  
I. A class may have multiple parent interfaces.  
II. Two or more classes may share a super-class.  
A. I and II    B. None    C. I only    D. II only
- 28、 Which of the following categorizations can be applied to both the data fields and the methods in a Java class?  
A. native and non-native  
B. default and non-default  
C. static and non-static  
D. abstract and non-abstract
- 29、 A Java array that contains n components will be indexed from \_\_\_\_ to \_\_\_\_  
A. 1, n    B. 1, n-1    C. 0, n    D. 0, n-1
- 30、 An object that contains method to traverse a vector linearly from start to end is known as  
A. set    B. iterator    C. loop    D. array

评阅教师	得分

## 二. 程序设计题 (本大题共 3 小题, 共 25 分)

1. Write a Java program (for or for-each loop is required) to join two array lists. (5 points)
- ```
import java.util.*;
public class JoinTwoList {
    public static void main(String[] args) {
        ArrayList<String> c1 = new ArrayList<String>();
        c1.add("Red");          c1.add("Green");    c1.add("Black");
        c1.add("White");       c1.add("Pink");
    }
}
```

```
System.out.println("List of first array: " + c1);
```

```
ArrayList<String> c2 = new ArrayList<String>();  
c2.add("One");          c2.add("Two");  
c2.add("Three");        c2.add("Four");  
System.out.println("List of second array: " + c2);
```

```
// Join above two list  
ArrayList<String> list = new ArrayList<String>();
```

```
System.out.println("New array: " + list);
```

```
}
```

```
}
```

2. Write a Java program (for loop is required) to reverse elements in an array list. (10 points)

```
import java.util.*;  
public class ReverseList {  
    public static void main(String[] args) {  
        // Create a list and add some colors to the list  
        ArrayList<String> list = new ArrayList<String>();  
        list.add("Red");  
        list.add("Green");  
        list.add("Orange");  
        list.add("White");  
        list.add("Black");  
        System.out.println("List before reversing :\n" + list);
```

```
System.out.println("List after reversing :\n" + list);
```

```
}
```

```
}
```

3. Complete the following code according to requirements? A die has a state, which is the current face value (1 to 6). The method Random.nextInt(int n) return a random number between 0 (inclusive) and the specified value n (exclusive). (10 points)

```
import java.util.*;

public class Die {
    private int face;
    private Random rand;

    private Die(int face) {
        rand = new Random();
        // TO do (1)
    }

    public static Die roll() {
        // TO do (2) generate a random number between 1 and 6 by rand
        int number =

        return new Die(number);
    }

    private int getFace() {
        return face;
    }

    public boolean equals(Object obj) {
        // To Do (3) Two dies equal if they have the same face value,
        instanceof is required
    }
}
```



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|------|----|
|      |    |

## 三、UML 类图设计（本大题共 1 小题，共 15 分）。

A segment of incomplete code is given below

```
abstract class MovableBall {
    public abstract double getX();
    public abstract double getY();
    public abstract double getXMotion();
    public abstract double getYMotion();
    public abstract void setMotion(double dx, double dy);
    public abstract double getRadius();
    public abstract void move();
}

class SimpleMovableBall extends MovableBall {
    protected double x, y, dx, dy;
    protected double radius;

    public SimpleMovableBall(double x, double y, double radius) {
        // To do (1)

        dx = 20.0;
        dy = 20.0;
    }

    public double getX() {
        // TO do (2)
    }

    public double getY() {
        // TO do (3)
    }

    public double getRadius() {
        // TO do (4)
    }

    public double getXMotion() {
        return dx;
    }

    public double getYMotion() {
        return dy;
    }

    public void setMotion(double dx, double dy) {
        // TO do (5)
    }

    public void move() {
```

```
        x += dx;
        y += dy;
    }
}

class DeceleratingBall extends MovableBall {
    private MovableBall workerBall;

    public DeceleratingBall(MovableBall ball) {
        // TO do (6)
    }

    public double getX() {
        // TO do (7)
    }

    public double getY() {
        // TO do (8)
    }

    public double getXMotion() {
        // TO do (9)
    }

    public double getYMotion() {
        // TO do (10)
    }

    public void setMotion(double dx, double dy) {
        // TO do (11)
    }

    public double getRadius() {
        // TO do (12)
    }

    public void move() {
        // TO do (13)

        workerBall.setMotion(workerBall.getXMotion() * 0.95,
                               workerBall.getYMotion() * 0.95);
    }
}
```

(1) Give a suitable design pattern name for the code above  
(2) Complete the code above  
(3) Draw a class diagram for the code above