四川大学期末考试试题（闭卷）

（2016~2017 学年第 2 学期）　　　　　　　B 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 2016 级__　　　　　　学号：_____　　姓名：_____

<table>
<tr><td colspan="4" align="center">考生承诺</td></tr>
<tr><td colspan="4">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；
2、不带手机进入考场；
3、考试期间遵守以上两项规定，若有违规行为，同意按照有关条款接受处理。

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题　号	一(40%)	二(20%)	三(20%)	四(20%)			
得　分							
卷面总分		教师签名		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 20 小题，每小题 2 分，共 40 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	2	3	4	5	6	7	8	9	10

11	12	13	14	15	16	17	18	19	20

1. What is displayed by

　　　Systsem.out.println(5 + new Integer(5) + 3);

　A. 13　　　B. 5+5+3　　　C. 553　　　D. ClassCastException

2. 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

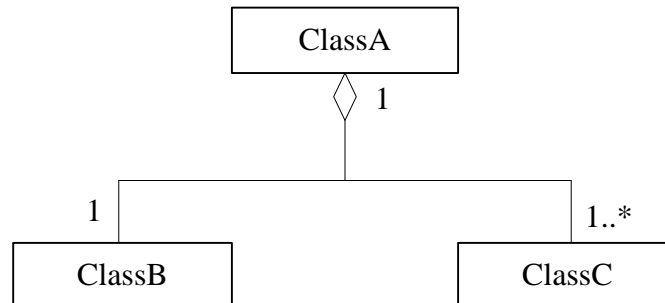3. Which of the following is not a method of java.util.Vector.

　A. add(Object o)

注：试题字迹务必清晰，书写工整。

B. add(int i, Object o)

C. addAll(Collection c)

D. None

4. Consider the following UML class diagram.

According to the diagram, which of the following statements is not 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. ClassB has a one-to-one association with ClassA and a one-to-many association with ClassC.

D. A, B and C.

5. What is the output of the following code segment.

List cities = new ArrayList();

cities.add("Beijing");

cities.add("Shanghai");

cities.add(1, "+");

System.out.println(cities);

A. [Beijing, Shanghai, 1, +]　　　　B. [Beijing + Shanghai]

C. [Beijing, +, Shanghai]　　　　D. [Beijing, Shanghai, +]

6. Regarding the following declaration, what is the index of the element containing `"Apple"`?

String[]　fruits = {`"Orange"`, `"Pear"`, `"Apple"`, `"Pineapple"`, `"Peach"`};

A. 3　　　　B. 2　　　　C. 1　　　　D. 0

7. In Java, int a = 7/2, what's the result?

A. 4　　　　B. 3.5　　　　C. 3　　　　D. None of the above

8. Consider the Java program below.

```
public class Array{
    public static void main(String[] args) {
        int[] a = {1, 2, 3,4};
        System.out.println(a[2]);
        System.out.println(a[4]);
    }
}
```

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

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A. The number 3 is printed and a run-time exception terminates execution.

B. The number 3 is printed and there is no abnormal termination.

C. The number 2 is printed and there is no abnormal termination.

D. The number 2 is printed and a run-time exception terminates execution.

9. Legal Java statements to initialize an array reference include which of the following?

I. int[] array = {0, 1, 2, 3};

II. int[4] array = {0, 1, 2, 3};

III. int[] array = new int[4];

A. I and II only　　B. I only　　C. III only　　D. I and III only

10. Which of these keywords is used to refer to member of parent class from a child class?

A. upper　　B. super　　C. this　　D. None of the above

11. Consider the following method call, where v is an instance of the class java.util.Vector.

v.size();

This method call returns the number of

A. bytes used by v

B. times that the method v.add has been called

C. Vector objects that have been instantiated

D. elements in the vector represented by v

12. 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

13. 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. allow the use of object-orientated concepts in a language that is not object-oriented

D describe a practical solution to a common design problem

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

I. An abstract class may contain data fields.

II. Interfaces may contain data fields.

A. I only　　B. II only　　C. None　　D. I and II

15. 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)

16. 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(3));
```

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```
        }
    }
```
A. I   B. i   C. L   D. Java

17. Which of the following is a Java event that is generated when a JList component is pressed?

A. ButtonEvent   B. ActionEvent

C. ClickEvent   D. ListSelectionEvent

18. The Singleton 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

19. Which of the following is true about association and dependency in UML class diagrams?

A. Association and dependency have no meaningful relationship.

B. Association is a special form of dependency.

C. Association is the opposite of dependency.

D. Dependency is a special form of association.

20. What will be output when the following Java program segment is executed?

```
int x = 9;
int y = 13;
System.out.println("x + y");
```

A. x + y   B. 22   C. 9+13   D. 913

评阅教师	得分

二、基本程序设计题 (本大题共 2 小题，每小题 10 分，共 20 分)

1. (10 points) The following class **Dictionary** is designed to store and manipulate a list of words. The incomplete class is shown below. You will be asked to implement two methods.

```
public class Dictionary {
    private ArrayList<String> myDictionary;

    /**
     * Returns <code>true</code> if the specified word is part of
     * this dictionary.
     *
     * @param word  the word to be looked for.
     * @return <code>true</code> if the specified word is part of
     *         this dictionary; <code>false</code> otherwise.
     */
    public boolean hasWord(String word) {
        // to be implemented
```

```
    }

    /**
     * Adds a new word to this dictionary.
     *
     * @param word  the  word to be added.
     */
    public void addWord(String word) {
        // to be implemented
```

```
    }
}
```

2. (10 points) The class **Shape** is a abstract class declared as the followings.

```
public abstract class Shape {
    private String name;
    public Shape(String initialName) {
        name = initialName;
    }
    public String getName() {
        return name;
    }
    public abstract String draw();
}
```

The subclass **Circle** has the partial declaration shown below. The Circle method draw should return "Circle-based Drawing".

```
public class Circle extends Shape {
    public Circle(String initialName) {
        // to be implemented
```

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```
    }

    // method draw to be implemented




    // if the argument obj is a circle and has the same name, return true
    public boolean equals(Object obj) {




    }
}
```

评阅教师	得分

三、应用题（本大题共 **1** 小题，共 **20** 分）。

You are required to implement a program named *AutoConfig* to config a servlet information into a file called web.xml. The application prompts the user to "Add a servlet configuration:", the user enters a line with the following format:

description_display-name_servlet-name_servlet-class

Where:

  description is about the servlet description.

  display-name is the displaying name of the servlet.

  servlet-name is the registering name of the servlet.

  servlet-class is the class name of the servlet.

The fields are delimited by an underscore (_). The application parse user's input and save the configuration information in XML. E.g., a file with the following content should be created:

  <web-app version="2.4">

    <servlet>

       <description>A Servlet Controller</description>

      <display-name>Controller</display-name>

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```
        <servlet-name>Controller</servlet-name>
        <servlet-class>Controller</servlet-class>
    </servlet>
</web-app>
```
If the user's input is invalid, the application displays an error message.

评阅教师	得分

四、UML 类图设计（本大题共 **1** 小题，共 **20** 分）。

A class **Faculty** is designed to model a university's instructors. It contains four private instance variables: name (String), email (String),　　interests (ArrayList<Interest>)　　and　　courses (ArrayList<Course>). One constructor to initialize the name, email, interests and courses, public getters/setters methods for each attribute are needed. And a toString() method that returns as the followings:

　　　　"Faculty [name=?, email=?, interests=?, courses=?]"

e.g., "Faculty [name=Tom, email=tom@scu.edu.cn, interests=Software + Security, courses=OOP]".

A class **Interest** is designed to model interests hold by all faculties. It contains two private instance variables, name (String) and description (String). One constructor to initialize the name and description. public getters/setters methods for each attribute are needed.

A class **Course** is designed to model courses hold by the university, assume that a course has name (String), only one main instructor (Faculty), credit (int) and syllabus (String). One constructor to initialize the name, main instructor, credit and syllabus. public getters/setters methods for each attribute are needed. And a toString() methods that returns: "Course [name=?, Faculty [name=? , email=?, interests=?, courses=?], credit=?, syllabus=?]. You should reuse Faculty's toString().

(1) Draw a class diagram according to the description above;

(2) Complete the source code for all three classes;

(3) Write JUnit TestCase to verify the toString methods of class **Faculty** and **Course.**