浙江大学 2006－2007 学年春季学期

《软件工程》课程期末考试试卷

开课学院：计算机学院，考试形式：**开卷**，允许带一本教科书入场

考试时间：2007 年 4 月 23 日， 所需时间： 120 分钟

考生姓名：_____学号：_____专业：_____教师：_____

题序	一	二	三	四	总 分
得分					
评卷人					

I. Please select the correct answers and *fill in the answer sheet*: (20 pts.)

Note:* Zero point *for a blank selection since there is at least one answer for each problem.

1. Which factors are important when choosing a project team leader?
   (A) managerial identity (B) ability of communicating to other people
   (C) problem solving ability (D) outstanding programming ability
2. Evolutionary software process models include _____
   (A) the spiral model (B) the RAD model (C) OO model (D) the incremental model
3. What models are created during the analysis phase of a software development process?
   (A) Data model (B) Linear sequential model (C) Functional model (D) Behavioral model
4. Which of the following interface design principles reduce the user's memory load?
   (A) allow interaction to be undoable (B) disclose information in a progressive fashion
   (C) hide technical internals from casual users (D) establish meaningful defaults
5. Which of these are valid software configuration items?
   (A) case tools (B) executable programs (C) test data (D) documentation
6. Three categories of risks are _____
   (A) project risks (B) planning risks (C) technical risks (D) business risks
7. A task set in project scheduling is a collection of _____
   (A) responsibilities (B) engineering work tasks (C) milestones (D) cost estimates
8. UML (unified modeling language) analysis modeling focuses on the _____
   (A) user model (B) structural model (C) behavioral model (D) environment model
9. The design description of an object can take one of the following forms _____
   (A) operator sequences (B) protocol description (C) implementation description (D) object template
10. The OO testing integration strategy involves testing _____
    (A) operations that are critical
    (B) single operations as they are added to the evolving class implementation
    (C) groups of classes that collaborate or communicate in some way
    (D) operator programs derived from use-case scenarios

II. Please specify "T" (true) or "F" (false) for the following statements: (10 pts.)

1) If we get behind schedule, we can add more programmers and catch up.
2) CD and CC team structure can be successfully applied to simple problems, but DD structure is best for difficult problems.
3) LOC is the important normalization value for function-oriented metrics.
4) Software project estimation can never be an exact science, but a combination of good historical data and systematic techniques can improve estimation accuracy.
5) Formal technical review is a kind of important activities in software quality assurance process.
6) The good design should supply low cohesion and high coupling.
7) Program flow chart is easier to maintain than PDL for procedural designing.
8) Black-box testing focuses on the software interface, and if we have conducted a successful black-box testing, we can omit the white-box testing.
9) Because software developers are familiar with the software, the best software testing candidates are software developers.
10) Information about one thing should be localized with a single class, not distributed across multiple classes.

III. Please give brief answers to the following questions: (20 pts.)

1. Explain how size-oriented metrics differ from function-oriented metrics. Discuss the pros and cons of each. Why is it important for software developers to make use of measurement to guide their work? (6 pts.)
2. For the statement **`if ((A>B)&&(C==D)||(E<=G))`**, what is the minimum number of test cases required to test every condition at least once? Please briefly verify your answer. (6 pts)
3. Given a procedure for computing the average of positive numbers:

```
i=0;
sum=0;
input a;
while (a!=0) {
    if (a>0){
        i++;
        sum+=a;
    }
    input a;
}
```

```
if(i>0)
    avg=sum/i;
else
    avg=0;
```

Please draw the corresponding box diagram; (4 pts.)

4. Please describe the three most important characteristics of object-oriented systems.. (4 pts.)

IV. Given the description of Document Management System, please analyze the system requirements and complete the requested models. (50 pts.)

Document Management System description: The system is for managing the lifecycle of documents. The software can catalog the documents into many hierarchical directories. Any one piece of document belongs to one and only one directory and contains some versions, which may include some files. Each of the above objects is attached with at least three attributes: id, name and created time. User can create a new document and add it to the specified directory. When a user checks out a document version, system will lock the document version until the user checks in a new version. User can search document by name and delete the document.

1. Please draw two data flow diagrams for creating a new document（including buliding a default version and uploading some files）in a specified directory and searching some documents by name. (12 pts.)
2. Please give the 2 most important data dictionary cards. (8 pts.)
3. Please draw the state transition diagram for a document. (10 pts.)
4. Please give the 4 most important CRC cards. (8 pts.)
5. Please draw the relationship diagram between objects according to the above 4 CRC cards. (12 pts.)

Answer Sheet

Part I				
1.	2.	3.	4.	5.
6.	7.	8.	9.	10.
Part II				
1.	2.	3.	4.	5.
6.	7.	8.	9.	10.
Part III				
1.				
2.				

3.

4.

Part IV