浙江大学 2003 —2004 学年第 1 学期期终考试

《 软件工程 》课程试卷

考试时间：__120__分钟　开课学院_　计算机_　专业__

姓名_____ 学号_____任课教师_____

题序	一	二	三	四	总分
评分					
评阅人					

I. Please select the correct answers and fill in the answer sheet: (15 pts.)

1. List the four design models required for a complete specification of a design in traditional software engineering method
   (A) Subsystem design (B) Data design (C) Task design
   (D) Architecture design (E) Interface design (F) Component-level design
2. Evolutionary software process models include
   (A) the spiral model (B)the RAD model (C)OO model (D)the incremental model
3. Approximately what percent of the project time line should be devoted to each of the activities listed below?
   Planning _____; Analysis _____; Design _____; Coding_____; Testing_____.
   If you could expend more time in one activity, which would have the highest likelihood of improving software quality?
   (A) Planning (B) Analysis (C) Design (D) Coding (E) Testing
   (F) 2-3% (G) 10-25% (H) 15-20% (I) 20-25% (J) 30-40%
4. What are not the elements that are present in every computer-based system?
   (A) people (B) software (C) product (D) documentation (E) project
5. 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; (E) Prototyping model.

II. Please specify "T" (true) or "F" (false) for the following statements: (15 pts.)

1. The current software crisis was caused by the Y2K problem whose seeds were first sown by careless programmers in the early 1970's.
2. The three generic phases of software engineering are definition, development, and support.
3. Software development activities are easy to compartmentalize into four non-overlapping phases.
4. Project management is less important for modern software development since most projects are successful and completed on time.
5. A software quality metric that can be used at both the process and project levels is defect removal efficiency (DRE).
6. Using a statistical technique like decision tree analysis can provide some assistance in sorting out the true costs associated with the make-buy decision.
7. The reason for refining risks is to break them into smaller units having different consequences.
8. A task selector value is most appropriately used to determine whether to accept or reject a given task for inclusion in the project task set.
9. People who perform software quality assurance must look at the software from the customer's perspective.

10. Change control is not necessary if a development group is making use of an automated project database tool.
11. System models are built to allow the system engineer to evaluate the system components in relationship to one another.
12. The use of context free questions by themselves provides an effective means of eliciting requirements information from the customer.
13. The primary purpose of an entity relationship diagram in the data model is to allow normalization of relationship tables.
14. With thorough testing it is possible to remove all defects from a program prior to delivery to the customer.
15. Object-oriented designs do not need to be implemented using object-oriented programming techniques.

III. Please give brief answers to the following questions: (30 pts.)

1. Describe the difference between "predictable risks" and "unpredictable risks". (10 pts.)
2. Is it fair to say that a Preliminary User's Manual is a form of prototype? Explain your answer. (10 pts.)
3. How do object-oriented design and structured design differ? (10 pts.)

IV. Given the description of a system, please analyze the system requirements and complete the requested models. (40 pts.)

Water-Monitoring System description: The water-monitoring system is to gather data at many points throughout a river valley. At the collection sites, several calculations are done according to the data (date, direction, level, flux, rainfall, etc.) and the results (statistics, forecast, summary report, etc.) are communicated to a central location for comprehensive reporting. An automatically generated report mainly contains charts and tables of all kinds of data collected from different locations, together with a summary document. Different department is allowed to access different part of a report.

1. Please formulate your project scheduling and track plan. (6 pts.)
2. Please draw the data flow diagram for the system. (10 pts.)
3. Please design the system architecture. (8 pts.)
4. Please draw the class diagrams and specify the relationships between objects. (8 pts.)
5. Please give the 4 most important CRC cards. (8 pts.)

Answer Sheet

Part I				
1. BDEF	2. AD	3. FGIHJC	4. CE	5. ACD
Part II				
1. f	2. t	3. f	4. f	5. t
6. t	7. f	8. f	9. t	10. f
11. t	12. f	13. f	14. f	15. t

Part III

1.

predictable risks：能够从既往经验推断出来的风险(3)
unpredictable risks：风险的存在、出现，很难事先识别出来(3)
the difference between：前者是可识别的，后者却难以识别(4)

2.

Preliminary User's Manual 作为一种纸上原型(3)，将软件描述为一个黑盒(3)，是发现人机交互界面中的问题的有价值的工具(4)。

3.

differ：OOD 主要关心对象间的协作(5)，SD 主要关心构件间的控制流(5)

Part IV