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教务外试题编号：311-11

- D. Why can't software errors be removed from products prior to delivery?
3. Software deteriorates (退化) rather than wears out (磨损) because( )
- A. Software suffers from exposure to hostile environments
  - B. Defects are more likely to arise after software has been used often
  - C. Multiple change requests introduce errors in component interactions
  - D. Software spare parts become harder to order
4. Which of the items listed below is not one of the software engineering layers?( )
- A. Process
  - B. Tools
  - C. Methods
  - D. Manufacturing
5. Process models are described as agile because they ( ).
- A. eliminate the need for cumbersome documentation
  - B. emphasize maneuverability (操作性) and adaptability
  - C. do not waste development time on planning activities
  - D. make extensive use of prototype creation
6. The incremental model of software development is ( ).
- A. A reasonable approach when requirements are well defined.
  - B. A good approach when a working core product is required quickly.
  - C. The best approach to use for projects with large development teams.
  - D. A revolutionary model that is not used for commercial products.
7. The things that make requirements elicitation difficult are problems of ( )
- A. Scope
  - B. Understanding
  - C. Volatility
  - D. All of the above
8. The result of the requirements engineering elaboration task is an analysis model that defines which of the following problem domain(s)? ( )
- A. Information
  - B. Functional
  - C. Behavioral
  - D. All of the above
9. Which of the following traits need to exist among the members of an agile software team?( )
- A. Competence
  - B. Decision-making ability
  - C. Mutual trust and respect
  - D. All of the above
10. Which of these is not one of the phase names defined by the Unified Process model for software development? ( )
- A. Inception phase
  - B. Elaboration phase

- C. Construction phase  
D. Validation phase
11. Which of the following lists can be used to describe program logic: ( )  
A. Activity diagram  
B. nature language  
C. program chart  
D. all of the above
12. Which of the following are not areas of concern (考虑) in the design model? ( )  
A. architecture  
B. data  
C. interfaces  
D. project scope
13. Polymorphism(多态) can be described as? ( )  
A. Hiding many different implementations behind one interface  
B. Inheritance  
C. Information placing  
D. Generalization
14. In component-level design, elaboration does not require which of the following elements to be described in detail? ( )  
A. Attributes  
B. Source code  
C. Interfaces  
D. Operations
15. Which one of the following is not one of the three golden rules for UI design? ( )  
A. Place the user in control.  
B. Reduce the user's memory load.  
C. Make the interface consistent.  
D. Provide for flexible interaction.
16. Bottom-up integration testing has it's major advantage that ( )  
A. major decision points are tested early  
B. no drivers need to be written  
C. no stubs need to be written  
D. regression testing is not required
17. Which one of the following items is not software configuration management task? ( )  
A. Configuration auditing  
B. Version control  
C. Change control  
D. Repository
18. Effective software project management focuses on four P's which are ( )  
A. people, performance, payoff, product  
B. people, product, performance, process

- C. people, product, process, project  
D. people, process, payoff, product
19. One view of requirements modeling called structured analysis, ( ).  
A. considers data and the processes that transform the data as separate entities.  
B. data objects are modeled in a way that defines their attributes and relationships.  
C. processes that manipulate data objects are modeled in a manner that shows how they transform data as data objects flow through the system.  
D. All of the above.
20. A model ?( ).  
A. Is not necessary when team members understand their job.  
B. Has to be structural AND behavioral.  
C. Is a simplification of reality.  
D. Is an excuse for building an elaborate plan.

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## 二、判断题（本大题共 10 小题，每小题 1 分，共 10 分）

提示：正确打√，错误打×。

1	2	3	4	5	6	7	8	9	10

1. Software is a product and can be manufactured using the same technologies used for other engineering artifacts. ( )
2. The V model is an important design pattern. ( )
3. Change cannot be easily accommodated in most software systems, unless the system was designed with change in mind. ( )
4. It is generally accepted that one cannot have weak software processes and create high quality end products. ( )
5. Cohesion refers to elements in the same module, whereas coupling refers to elements in different modules. ( )
6. Showing your customer a mockup (实体模型) of the UI (用户界面) is one good way to get feedback while gathering requirements. ( )
7. In general software succeeds only if its behavior is consistent with the objectives of its designers. ( )
8. A general statement of objectives is sufficient to begin writing programs. We can fill in the details later. ( )
9. Until I get the program “running” I have no way of assessing(评估) its quality. ( )
10. The only deliverable work product for a successful project is the working program. ( )

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三、名词解释（本大题共 5 小题，每小题 2 分，共 10 分）

提示：解释每小题所给名词的含义，若解释正确则给分，若解释错误则无分，若解释不准确或不全面，则酌情扣分。

1	2	3	4	5

1. software engineering（共2分）

2. pair programming（共2分）

3. requirements engineering（共2分）

4. refactoring（共2分）

5. Equivalence partitioning（共2分）

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四、问答题（本大题共 2 小题，每小题 10 分，共 20 分）。

1. Describe the 5 generic process framework activities for software engineering.

2. What are the differences between the Black-box testing techniques and the white-box testing techniques? (共10分)

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五、分析设计题（本大题共3小题，共40分）。

1. Describe your opinions of why computer software needs to evolve over time. (共10分)

2. Suppose you are hired by a software company as a software engineer being responsible for the improvement of the software process, and software process model currently used is the waterfall model. There are some problems in the software development:

- a. Much effort in rework (大量返工) due to the ambiguous(模糊的) requirements;
- b. Software delivery is often behind the schedule ;
- c. Customers complained that the software development cycle is too long and affected their core business development.

The company director wants you to write a report about how to improve the software process (not less than 150 words). (共 10 分)

3. A convenient store (e.g., the WoWo) wants to set up a food-to-go management system. The requirements are as following:

- a. A vending (出售) machine dispenses the food box at the press of a button
- b. There are different food boxes with different prices
- c. Customers choose the food box (or boxes) they will have and mark them as “purchased”
- d. The vending machine can accept either 微信支付 or 支付宝支付 with a payment selection button
- e. Customers will access the system using their smart phone

Consider the scenario “A customer gets a food box”

Create a use case for the above scenario with the following format:

Primary Actor: Customer

Goal: To get a food box

Preconditions: (**Question 3.1**: please list preconditions (前置条件) for this use case) (5分)

Trigger: A customer will have a food box and wants to pay for it.

Scenario: (**Question 3.2:** please list the scenario for this use case) (5 分)

Exceptions: (**Question 3.3:** please list exceptions for this use case) (5 分)

**Question 3.4:** Show the CRC (Class-Responsibility-Collaborators) description of the Customer class with three collaborators: Food Box, Payment Account and Exception classes.

(Hint: describes “responsibility” of the Customer class) (5分)