

ICS 52 - Introduction to Software Engineering
Midterm Exam #1 – Fall, 2007

Last Name: K E Y First Name: _____

1. (20 points) According to the textbook, what are two essential characteristics of software engineering that are always present, either explicitly or implicitly? (Don't answer "multi-person" and/or "multi-version".) Briefly explain each characteristic in a sentence or two.

First:

See pages 6 – 8.

Each part 10 points; in each part, 4 points for naming a characteristic on the list (1 pt for another s.e. concept, such as "modularity") and 6 points for the brief explanation.

Second:

2. (10 points) Choose *one* of the two characteristics you wrote about in problem 1, and *one* of the software engineering principles discussed in lecture; discuss how adhering to that principle addresses the issues related to that characteristic.

4 points for choosing a software engineering principle discussed in lecture (modularity, separation of concerns, abstraction, anticipation of change, information hiding); 1 out of 4 for naming some other s.e. concept, such as "maintainability." 6 points for discussion.

3. (10 points) The textbook describes several requirements elicitation techniques. For example, one is “Asking,” defined as “We may simply ask the users what they expect from the system.” Name and briefly define one other requirements elicitation technique described in the textbook.

See pages 217—224. Roughly 2 points for the name and 8 points for the brief definition.

4. (5 points) What is usually most effective, sticking with one requirements elicitation technique, or using multiple techniques? Explain your answer.

We accepted either choice; full credit for a cogent response.

5. (10 points) Requirements can be specified using any of a number of techniques; for homework 1 you are using natural language exclusively. The textbook describes “seven sins which may beset the analyst when using natural language.” For example, one is “Noise,” defined as “the presence of text elements that do not contain information relevant to the problem.” Name and briefly define one other “sin” listed in the textbook. **See pp. 232—233.**

6. (10 points) Draw a diagram illustrating the Waterfall software process model.

See p. 50; or as drawn in lecture without V&V boxes.

7. (10 points) [Read question 8 before answering this question.] Describe one problem that is often encountered when the waterfall model is applied.

8. (10 points) Name and briefly describe a software process model, other than the Waterfall, that was described in lecture or in the textbook. How does that software process model address the Waterfall problem you identified in question #7?

9. (10 points) Consider this claim: “The System Requirements write-up for the Online Wine Store illustrates the desirable quality of _____.” Fill in the blank with a software quality discussed in lecture or in the textbook, other than “correctness.”

2 pts for a quality, 1 pt for some other s.e. concept (e.g. “modularity”).

Explain why the claim is true (using the quality you selected.) Your answer should reference specific aspects of the write-up. Make sure you focus on the System Requirements write-up, and not on the (currently unimplemented) system.

**Little credit if response did not “reference specific aspects of the write-up.”
Half credit (4 out of 8) for explanations based on the implemented system,
and not on the write-up.**

10. (5 points) Suppose you are working on a software project as a project leader. On a certain Wednesday you decide what your team’s software development goals are for the next week, and then you determine that there are three possible ways to achieve those goals: work on them with current staff; hire some additional staff to accomplish them; or purchase a software product which you have read about. On this Wednesday, which quadrant of the spiral model are you working in?

Upper left or NW; 2 pts for Lower left or SW; 1 pt for Upper right or NE.