

ICS 52 - Introduction to Software Engineering  
Midterm Exam #1 – Fall, 2008

Last Name: KEY First Name: \_\_\_\_\_

1	2	3	4	5	6	Total
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1. (10 points.) Name and define (in the context of software engineering) one desirable software quality, other than “maintainability,” discussed in lecture or the textbook. Read question 2 before you answer this question.

**Second edition, see p. 111**

**Third edition, see p. 124**

2. (15 points.) Select one software process model described in lecture or the textbook, and describe how following that model promotes the software quality you selected in question 1. Be quite specific.

**For full credit, we looked for an answer that made a strong and logical connection between the process model and the quality.**

3. (15 points.) What characteristic(s) of the On-line Wine Store system requirements write-up supports the quality of “maintainability”? Make sure your response focuses on the write-up, and not on the (unimplemented) running system. Be specific.

**There were two good ways to approach this question:**

**The requirements are maintainable because the requirements have certain characteristics.**

**For example: Separate aspects of functionality are put in separate bullet points, which reflects their independence. If one changes, it will probably not be necessary to change the others.**

**The running system is maintainable because the requirements have certain characteristics.**

**For example: The requirements are well-organized and written in a modular and discrete manner, which will lead to a system in which different aspects of functionality are implemented in different parts of the code. That will make the system more maintainable.**

**No credit for answers that interpreted “maintainability” as referring to either the system data (e.g. list of customers) or the company’s warehouse of wine.**

4. (15 points) According to the textbook, several processes are part of requirements engineering. One of them is *Requirements specification*: “Once the problem is understood, it has to be *described*.” Name and describe one of the other processes in requirements engineering that the textbook lists.

**See p. 208 (2<sup>nd</sup> ed.) / p. 218 (3<sup>rd</sup> ed.)**

**Requirements elicitation: the requirements engineer gains expertise and an internal model of the desired system. Building a conceptual model of the Universe of Discourse.**

**Requirements validation and verification: ascertain that correct requirements are stated (validation) and that these requirements are stated correctly (verification).**

**Requirement negotiation: resolving conflicts or setting priorities. (3<sup>rd</sup> ed. only)**

5. (30 points) Consider this statement: “One particular software process model puts the focus on risk.”

**5 points for each of 6 parts.**

- a. Define “software process” as used in this sentence.

**0 points for “the process of creating software”**

- b. Define “model” as used in this sentence.

**3 points for “rules to follow” – a model can be descriptive**

- c. What software process model is being referred to?

**spiral – prototyping OK too.**

- d. How does this software process model focus on risk?

- e. Describe one particular kind of risk in a software process and how this model can reduce that risk.

**for full credit, a clear connection between the risk named and how the model addresses that risk.**

- f. In what sense could this software process model be described as “agile”?

**for full credit, the answer should demonstrate a clear notion of “agile”**

6. (15 points) According to the textbook, what are two essential characteristics of software engineering that are always present, either explicitly or implicitly? Your answer can name any two of those the textbook discusses. Don't answer "multi-person" and/or "multi-version". Briefly explain each characteristic in a sentence or two.

**See section 1.1**

First:

Second: