

ICS 52 - Introduction to Software Engineering
Midterm Exam #2 – Winter, 2009

Last Name: _____ First Name: _____

1	2	3	4	5	6-11	Total
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1. (15 points) The software engineering activity of testing is influenced by the general software engineering process. Select one software process model discussed in lecture or in the textbook, other than the waterfall model or the spiral model. What special issues in testing might arise when this model is being followed?

2. (20 points) Congratulations! You've been hired by SearchARoo, a company developing a new web based search engine that it hopes will be better than Google. Your title is Quality Assurance Engineer – Equivalence Partitioning Specialist. Your first task is to write a memo giving a high level overview of Equivalence Partitioning, its role in the entire testing process, the philosophy behind it, the steps involved, and at least one specific examples for each step of how it will work at SearchARoo. Restrict your memo to "black box" testing, and remember that you were hired because of your experience with homework 4 in ICS 52.

3. (15 points) We've discussed various desirable qualities in software. Name and define a desirable quality in a set of test cases. How could you ensure that a set of test cases actually had this quality – that is, how could you test the test cases?

4. (12 points) The textbook says that an object (as in *object-oriented programming*) is a collection of three aspects:

object = identity + state + behavior

Explain what each of the three aspects are in Java terms. Can a Java `int` be considered an object, according to this point of view? Explain why or why not.

5. (15 points) Select one of the principles of software engineering discussed in the lecture, and one of the architectural models presented in the textbook or in lecture. Briefly define each, and then explain how the principle you selected is exhibited in the model you selected.

Principle and definition:

Model and definition:

Explanation:

6. (3 points) The statements "We have to show something to our customer" and "We are judged by the amount of code written per person-month" and "We are pressed for time" are, according to the textbook, sometimes given as justifications for (choose the best answer)
 - A. writing elaborate class diagrams.
 - B. eliminating white-box testing.
 - C. using the waterfall model.
 - D. programming in Java.
 - E. not spending time on design.

7. (3 points) Specialization in a UML class diagram usually corresponds to which keyword in Java?
 - A. private
 - B. abstract
 - C. extends
 - D. implements
 - E. public

8. (3 points) A well-designed set of modules will usually have (choose one)
 - A. tight coupling and high cohesion.
 - B. tight coupling and low cohesion.
 - C. loose coupling and high cohesion.
 - D. loose coupling and low cohesion.

9. (3 points) In the Model-View-Controller design pattern, the job of the Controller is to (choose one)
 - A. handle input actions.
 - B. store the data.
 - C. determine which model executes first.
 - D. handle exceptions.
 - E. control the flow of data between the various views.

10. (3 points) Which of the following activities would be associated with the upper left hand quadrant of the spiral model? (Choose one.)
 - A. Acceptance testing.
 - B. Prototyping and resolving risks.
 - C. Determining objectives.
 - D. Developing software requirements.
 - E. Software product design.

11. (6 points) Define "testing oracle" as used in software engineering.