

Software Testing Comprehensive Exam

Fall 2010

ANSWER ANY FOUR OF THE FOLLOWING FIVE QUESTIONS.

Do not attempt more than four questions on the exam. If you answer five, pick your best four and *cross out the fifth*, the one you don't want us to grade. If you provide more than four answers, we will grade the first four and ignore the fifth.

1. You are working on a software development project as a software tester. The project manager approaches you for guidance about software lifecycles. She can select either the waterfall model or the evolutionary model and she wants to understand the testing implications of her choice.
 - A) Briefly describe the waterfall and evolutionary models.
 - B) Briefly describe two ways in which the waterfall would make your work easier, and two ways in which it would make your work more difficult.
 - C) Briefly describe two ways in which the evolutionary approach would make your work easier and two ways in which it would make your work more difficult.
 - D) In your opinion, which should the manager use, and why?

2. The *oracle problem* is the problem of finding a method that lets you determine whether a program passed or failed a test.
 - Suppose that you were doing automated testing of the Microsoft word function, *Word Count* (which counts characters, words, paragraphs and pages in the document).
 - Describe two different oracles that you could use or create to determine whether this feature was working. For each of these oracles:
 - identify a bug that would be easy to detect using the oracle,
 - identify another bug that your oracle would be more likely to miss
 - explain whether and why it would be hard or easy to use this oracle in automated testing.

3. Define a scenario test and describe the characteristics of a good scenario test. Imagine developing a set of scenario tests that involve cutting and pasting of graphics in Microsoft Word. What research would you do in order to develop a series of scenario tests? Describe two scenario tests that you would use and explain how these would relate to your research and why each is a good test.

4. We are going to do some configuration testing of Microsoft Word. We want to test it on the following configurations:
 - Windows 98, 2000, XP Home and XP Pro (the latest service pack level of each)
 - Printing to an HP inkjet, a LexMark inkjet, a Xerox laser printer, and an Applewriter laser printer.
 - Connected to the web with a dial-up modem (28k), a DSL modem, a cablemodem, and a wireless card (802.11b).
 - With a 640x480 display an 800x600 display, a 1024x768 display and an 1152 x 720 display.
 - How many combinations are there of these variables?
 - Explain what an all-pairs combinations table is
 - Create an all-pairs combinations table (show at least some of your work)

- Explain why you think this table is correct.
5. Imagine that you are an external test lab, and Microsoft comes to you with the newest version of MS Word. They want you to test the product. How will you decide what test documentation to give them? (Suppose that when you ask them what test documentation they want, they say that they want something appropriate but they are relying on your expertise.) To decide what to give them, what questions would you ask (list 5 to 7 questions) and how would the answers to each of those questions guide you?