

SWE Comprehensive Examination

Software Testing

Student ID:

Each question is worth 20 points.

Part 1 Answer **all** 3 of the following questions.

1. Explain the definition of “coverage” in testing. Describe three different types of coverage that you can measure. For each one, describe a type of bug that you would be certain to find with this type of coverage and describe a type of bug that you might miss even if you achieved 100% of this type of coverage.
2. Explain the difference between static and dynamic testing. Describe a static testing method and a dynamic testing method.
3. Explain the difference between unit, integration and acceptance testing. Give reasons why it is important to do all three.

Part 2 Answer **3** of the following questions.

1. We are going to do some configuration testing of Microsoft Word. We want to test it on the following configurations:
 - Windows 98, 2000, and XP (the latest service pack level of each)
 - Printing to an HP inkjet, a LexMark inkjet, a Xerox laser printer, and an Applewriter laser printer.
 - With a 640x480 display and a 1024x768 display
 - How many combinations are there of these variables?
 - Explain what an all-pairs combinations table is
 - Create an all-pairs combinations table
 - Explain why you think this table is correct.
2. What is Functional testing? Give two examples of Functional testing techniques and describe the examples in detail. What is Structural testing? Give two examples of Structural coverage techniques and describe the examples in detail.
3. Boundary Value Analysis is a test case design approach. Describe how to perform Boundary Value Analysis using an example.
4. What is Performance testing? How is Stress testing related to Performance testing? Give two reasons for doing Performance testing.

5. In real time safety critical systems, timing of execution is extremely important. What methods would a tester use to guarantee sufficient testing of execution time?

Exam is worth 120 pts.