

CS 576 Dependable Software Systems

Lecture 1 Quiz Questions

The following questions are due on Wednesday July 5th by 6 P.M.

You **must** cite any sources that you use to answer these questions, other than the lecture notes. I expect a sufficient (use your discretion) explanation for each of the questions. Justify your answers as **thoroughly** and **clearly** as you can, as your answers will be grade on those criteria, not only on correctness.

Please submit a **PDF** file via email. The file should be in the form **id_L1.pdf** (in my case it would be **jhk39_L1.pdf**). You should send the email to jayk@drexel.edu with the subject **CS576 L1 id** (again, in my case the subject would be **CS576 L1 jhk39**). These assignments will get progressively harder as the term continues. If you have any questions, let me know and I will get back to you as soon as possible.

Question 1: Please argue the following statement: Software testing can only show the presence of bugs, not the absence of them.

Question 2: Why is it necessary to have intimate knowledge of the software system being debugged, while it is not always necessary to have it during testing? What are you benefits of having design knowledge while testing? Is there potentially any advantage to having less knowledge?

Question 3: How can we use an *oracle* to perform testing? What form of testing is best suited for using an oracle?

Question 4: Given a function that sorts an array of Rational Numbers that we know is correct, how can we use it to test a colleagues implementation of a sorting algorithm (we do not have the code)? Suggest 4 tests and why they would be effective in testing the system.

Question 5: You find a method that incorrectly computes a value in your code for some instances. You are aware that that method is used by many other functions in your code. You have also previous thoroughly tested your code. What do you do?

Question 6: Select one of the scholarly articles that will posted on the course website by Tuesday (which you can find at the Drexel Library) and write a short 3-paragraph review of the article. Please state what the major goals of the article were. Also, write 1-paragraph opinion of the article.