Software Engineering - Final Exam Spring 2013

Answer 3 of the following 5 questions for 10 points each. 1 extra point for SETE and 2 extra points for ABET evaluations will be added up to a total of 30 upon proof of submission on Moodle.

Q1 Examine the software quality of ONE of the following programs, with emphasis on usability and security. Elicit the requirements for an improved version you would suggest.

- A) The UNT SETE evaluation Web form, seen as part of a Web service
- B) The UNT CSE ABET evaluation Web form, seen as part of a Web service

Q2 The Winky app enables a Google Glass device to take pictures simply by winking. It is briefly described at https://plus.google.com/116031914637788986927/posts/Hp9n6oXpFfH and reviewed at http://www.wired.co.uk/news/archive/2013-05/2/winky-google-glass-app. Provide 3 simple use cases for the program. Assuming you are the leader of a team charged to port or create a similar app for an iPhone and/or Android phone, elicit the requirements and briefly describe a design, implementation and testing plan for your project. Hint: think also about how many cameras you need on your cell phone for the project!

Q3 You are the leader of a team developing, using an iterative approach, a compiler for programming language P, which is written in P. You have achieved a milestone where the compiler compiles itself on your development platform. Design a set of regression tests that can validate night builds of your compiler as you proceed with the next iterative steps, that involve various optimizations. Specify the regression tests informally as your answer to this question.

Q4 Briefly specify the goals and requirements and then prototype a small Scala program that, given a set of mp3 songs with each having "Artist", "Duration" and a "File Name" attributes sorts them by any of those attributes.

Q5 Write a small Scala program that checks if a string of parentheses is well balanced. For instance "0", "(())0(())", "00" are well balanced while "(()",")(" "))(, "())" are not.