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

First Name: _____ Last Name: _____

| 1 | 2 | 3 | 4 | 5 | Total |
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1. (6 points) What is the difference between white-box testing and black-box testing?

2. (20 points) The modularity of a design can be evaluated by the criteria of "cohesion" and "coupling."

   Define cohesion, in the context of software modularity.

   Define coupling, in the context of software modularity.

   Is it best to have a lot of cohesion or little cohesion? A lot of coupling or little coupling? Explain your answers, referring to at least one software quality or software principle discussed in lecture or the textbook.

3. (24 points) In Homework 2, you wrote Class Interface Specifications. Describe how writing these exemplifies each of the following design principles.

   abstraction

   modularity

   information hiding

4. (20 points.) Why is the design stage of the software development cycle particularly difficult? Explain why the factor you choose is not difficult, or at least is less difficult or less important, in other phases of software development.

5. (30 points) Congratulations! You have just been hired as Software Architect for a new system called CheatSheet (CS). CS will be used by teachers to determine whether papers and essays turned in to them are substantially similar to other papers which have been uploaded to CS. Teachers use CS by uploading Word, PDF, or plain text files over the Web, or they can fax printed copies to a special phone number. CS ranks each paper on a 1 to 100 scale, with a high number indicating greater similarity to a previously submitted document. Select two architectural styles described in the book or in lecture, write down their names, and for each style draw a diagram (*not* a UML class diagram) showing the CS architecture following that style. Make sure your diagrams are clearly labeled and clearly show a high-level design for CS using each architectural style.

Architectural Style #1 _____

Architectural Style #2 _____