

## **CSI518 Software Engineering**

### **Fall 2004 Final Exam**

December 10, 10:30 – 12:30

1. You are asked to use design patterns to design an Automatic Teller Machine (ATM); describe what patterns you would use, why the patterns were chosen and how you apply the patterns. (20pts)
2. Describe why code conventions are important in software development. (10pts)
3. Describe what 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, and 4<sup>th</sup> generation languages are and what their strengths and weaknesses are. (10pts)
4. Compare the strengths and weaknesses between black-box testing and Glass-box testing. Give an example to demonstrate that branch coverage criterion is stronger than statement coverage criterion for detecting code-based program faults. (20pts)
5. Describe why traditional testing techniques are not effective for testing object-oriented software and how you would suggest testing OO programs? (10pts)
6. Describe the major activities of software configuration management and their importance. (10pts)
7. Why does software maintenance cost so much more than other phases of software development and how would you suggest reducing software maintenance cost? (10pts)
8. What is software change impact analysis? Describe the existing techniques and limitations for impact analysis and what would you suggest for effective change impact analysis? (10pts)