Your Name:

College of Charleston
Department of Computer Science
CSCI 362 Software Engineering
Fall 2006
Jim Bowring

Final Examination

Answer all questions with complete sentences unless noted otherwise in the question. You may use the back of the exam papers to organize your thoughts and for continuations of answers when necessary. Please write your answers legibly. Each regular question is worth 10 points and each extra credit question is worth 2 points.

1. Discuss the problems of developing and maintaining software systems that are "always on" such as telephone switching systems. Note that material from the whole semester may be relevant here. How might you use exceptions in the development of such systems?

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Your Name:

2. Under what circumstances would you recommend the use of the staged representation of the CMMI?

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3. Explain why it is not necessary for a program to be completely free of defects before it is delivered to customers. How can testing be used to validate that the program is fit for its purpose?

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4. Explain why interface testing is necessary even when individual components have been extensively validated through component testing and program inspections.

5. Suggest how you would go about validating a password protection system for an application that you have developed. Explain the function of any tools you use.

(cont.)

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6. A multimedia virtual museum system displaying ancient Greece is to be developed for a consortium of European museums. The system should provide users with the facility to view 3-D models of ancient Greece through a standard web browser and should support an immersive virtual reality experience. What political and organizational difficulties might arise when the system is installed in the existing museums of the consortium?

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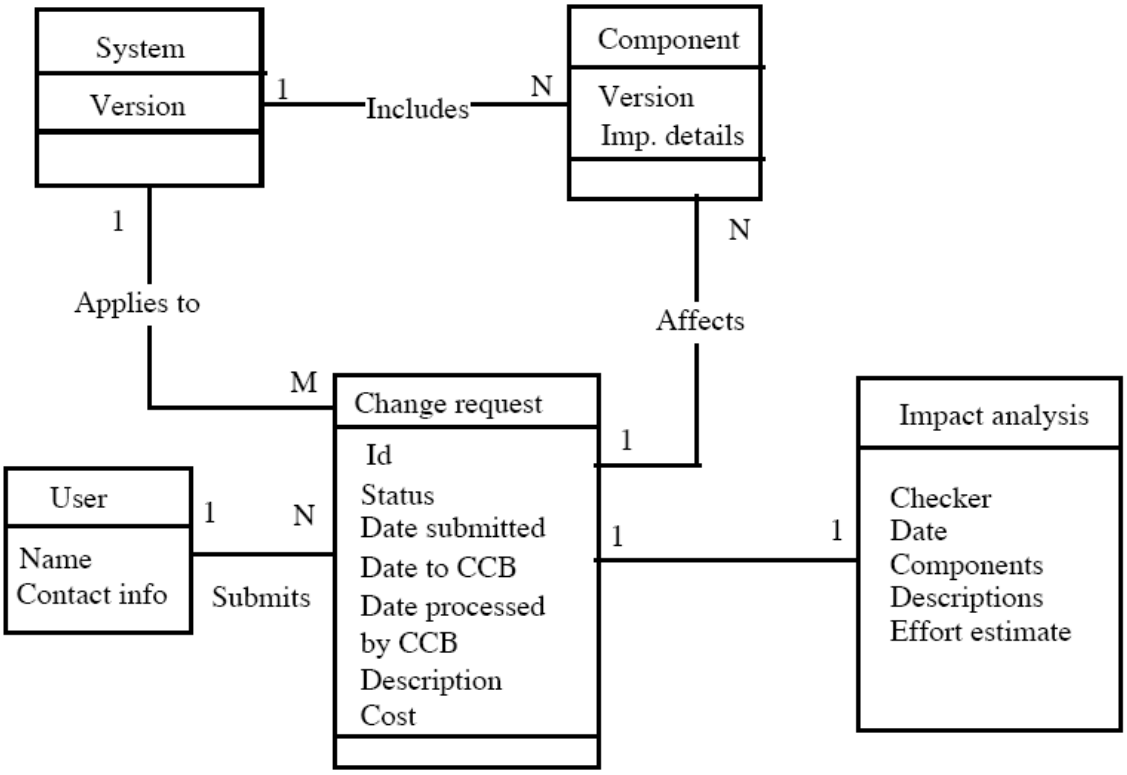
7. The diagram below describes a change-management system. Reverse engineer this diagram to produce at least five specific requirements for the data model depicted. As an example, one requirement is "It should be possible to retrieve all versions or a single identified version of a component."

Your Name:



8. Which article that we read found that early prototyping was associated with both higher productivity and a lower defect rate?

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9. Who is Watts S. Humphrey and why is he important to software engineering?

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Your Name:

10. Give an argument against the adoption and use of formal specifications by the software industry._____

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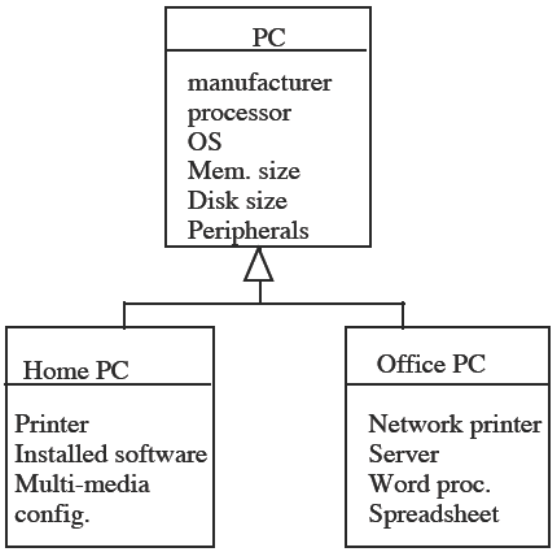
11. This diagram is a _____,
depicting a _____.



12. Cleanroom software development uses what kind of testing?_____

13. What is one metric for denoting the quality of a set of requirements and what would its range of values measure?

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Your Name:

14. Develop and draw a sequence diagram showing the interactions involved when a student registers for a course in a university. Courses may have limited enrollment, so the registration process must include checks that openings are available. Assume that the student uses an online course catalog.

Your Name:

EXTRA CREDIT QUESTIONS

15. Discuss how this course might be improved.

16. What does ACM stand for?

17. Explain the key property of a “robust” software system.

18. What does COCOMO stand for?

19. What does IEEE stand for?