

CSCI 112 Software Engineering
Spring 2005
Exam Review

1. What is software engineering?
2. Why is change such a problem in software engineering? At what levels can it be managed?
3. Define process in a software engineering context. Describe some advantages and disadvantages of process.
4. Why is it more difficult to create software in a group than by yourself?
5. Why is the term *software maintenance* a misnomer?
6. Why does software evolve?
7. Compare the waterfall and the iterative (also called spiral) software life cycle models. Give one example where the waterfall model would be advantageous and explain why. Give one example where the iterative model would be advantageous and explain why.
8. What are the phases in software development?
9. Describe how risk management pertains to software engineering.
10. During the risk management exercise, what was identified as the largest risk? What turned out to be the largest risk?
11. Describe the Carnegie Mellon University (CMU) Software Engineering Institute's (SEI) Capability Maturity Model (CMM)? What aspects of a company are captured in the five levels?
12. What is quality assurance?
13. What is the idea behind Edward Deming's approach to quality?
14. When an organization is under deadline pressure, people often abandon software quality procedures. What is this practice an indication of?
15. What steps could a software development organization take to improve quality?
16. What are the advantages of coding standards? Disadvantages?
17. Define each of the three main components of requirements engineering: elicitation, specification, validation.
18. What did you learn from the requirements exercise?
19. What is a use case?
20. What problems can arise when the architecture is based on use cases?
21. Create a use case for an automated teller machine (ATM) that details the task of withdrawing money. Assume that the customer is given the choice of which account (savings or checking) to withdraw from and the amount to be withdrawn.
22. What is a software architecture?
23. What are some different views that an architecture might include?
24. What is the Unified Modeling Language (UML) used for?
25. Define black box and white box testing. Give examples of each. What types of errors is black box testing better at detecting than white box testing? What types of errors is white box testing better at detecting than black box testing?
26. What are the pros and cons of code reviews?
27. What would you do if you were hired to implement a testing program for a software development organization?