

9 questions on 1 page. 100 marks total. 50 minutes total
Answer ANY 5 questions. All questions have equal weight.
One $8\frac{1}{2}$ X 11 Aid Sheet Permitted. WRITE LEGIBLY!

1. Your software company is about to release their *major* software product to their *most important* client. You have been asked to perform the last minute SQA checks that should be done before the product is actually shipped. You have the authority to delay the delivery if you believe the product is "not ready for prime time". What checks would you perform and why?
2. One emphasis in the course has been that a major goal of all software development should be the maintainability of the software that is developed. Describe several specific actions that should be taken during software development to achieve this goal.
3. Define **Cyclomatic Number**. Discuss the significance of cyclomatic numbers in the *software maintenance process*.
4. Define **Consistent Composition**. Why it is an important software engineering issue?
5. You have just been hired as Director of Software Engineering (*Congratulations!!*) by a large and rapidly growing software development company. Because the company is new and has grown so rapidly its software development process is at *Capability Maturity Model* level 1. What steps would you take to try and bring the company up to level 2? How would you justify the cost of taking these steps to your management?
6. The software producing organization that you work for doesn't use formal system models but instead relies on Makefiles and shell scripts written by the software developers. You want to spend \$200,000 to buy a software tool: **System Model Wizard** which completely automates the task of producing and maintaining accurate system models for your software. What arguments would you make to your management to justify this expense?
7. You are managing a large software producing organization and you've observed that software maintenance is taking a lot of time and effort. You've also observed that the quality of the programming done by the software maintenance group is poor. What steps would you take to improve the performance and productivity of your software maintenance group?
8. In the process of doing the CSC408S project your team invented an entirely new and original method for processing large character strings. You think that this new method might have significant commercial potential. Discuss the intellectual property issues that might affect your teams discovery of a new method. Who owns the discovery? What should you do to protect and exploit your discovery?
9. Some organizations have adopted the strategy that the "*the person follows the product*". For example a programmer might start working on the requirements definition and specification for a new product. Later they would move on to design and implement the product. After the product has been built they would work in the team that tests the product. After the product is delivered they would be assigned to the maintenance team for the product.
Do you think this is an appropriate strategy for managing human resources in the development of large software systems? Give a detailed justification for your answer.