

5 questions on 1 page. 100 marks total. 50 minutes total Open Book & Notes

Answer ALL 5 questions. All questions have equal weight. WRITE LEGIBLY!

If you need to make any assumptions to answer a question, state those assumptions clearly in your test book.

1. Explain **why** each of the Best Practices for SCM listed below helps improve software quality:

- a) Don't work outside managed workspaces.
- b) Give everything an owner.
- c) Propagate early and often.
- d) Don't use Jello views
- e) Build often.

2. You have been hired as a Software Reuse consultant by a large software company. The company has made increased software development productivity through software reuse a major part of their long term business strategy. They want you to lead their software reuse effort starting with seminars to educate senior managers and software developers about software reuse.

- a) what are the important issues you should discuss with the managers?
- b) what are the important issues you should discuss with the developers?

3. Assume that you are the Testing Manager for a software development organization that writes large application programs in C and C++. You want to buy some software tools to help your programmers test more effectively. You have been considering:

- a general purpose test case generator
- a test coverage measurement tool
- a database system for storing test cases and test output
- a documentation package for producing testing documents

Write a justification for the purchase of these tools. Your justification should include a priority for each tool and a discussion of how the tool will make your testing teams more productive.

4. Your Phase D software was so successful that the University has licensed it for use by all students starting in September 2003. Your team has from now until August 15 to expand the software to handle the entire University (8,000 courses) and to handle all legal forms of prerequisites, corequisites and exclusions. You will be paid \$250,000 for your software, but the University insisted on a very strict correctness criteria. The amount you will receive will be reduced by \$25,000 for every error that is discovered in your software during the first year of operation. Describe the steps that your team should take to avoid losing any money due to errors in your software. Propose a schedule for your teams activities from June 15 to August 15.

5. You are in charge of the long term maintenance of a large software system supervising a staff of 40 programmers. Your company expects that versions of the software you are maintaining will remain in operation for at least the next 10 years. It's the end of your fiscal year; you have 20 person months of effort still available in your budget. You want to use this effort to improve the future maintenance of the system. You have decided to spend this effort on either *redocumentation* or *restructuring* the software. How would you decide which one to do? Which one do you think is better? Justify your decision.