

UNIVERSITY OF TORONTO
FACULTY OF APPLIED SCIENCE AND ENGINEERING
FINAL EXAMINATION, December, 2009
CSC444H1 F – Software Engineering I
Examiner – D. Penny
2½ Hours - 100 marks total – each question worth 10 marks
Write all answers in the exam books provided.
No aids allowed other than non-programmable calculators.

Answer all questions succinctly, but including all relevant points. Think deeply about your answers, demonstrating your insight and understanding of software engineering with each one, and make convincing arguments to back them up. If you make a statement, for example "a certain practice is inefficient," then be sure to explain why. Avoid parroting back stock phrases from the book. Good luck!

1. Suppose a coder with a work factor of 0.6 estimates "2 weeks" for a feature, but implicitly is thinking of elapsed calendar time. How many ECDs will the feature take?
2. Suppose a release is planned such that $D(50) = N(400, 100)$ (a Normal distribution with mean 400 and sdev 100. Recall that the probability encompassed by ± 1 sdev is about 68%). Make statements about the likelihood of the release coming in on time, 100 ECDs ahead of schedule, and 100 ECDs behind schedule.
3. Explain the problems with a Normal distribution as an estimate for w , the work factor. Why might we choose to use one despite these problems?
4. While the purpose of release planning is estimating things in advance, why did we spend so much time defining how to measure what w and f were after the fact?
5. Describe what they are, and explain how and why the main, maintenance, and shipping codelines are used.
6. Continuous integration means building the product every night and running a set of sanity tests against it to check for problems during the coding phase. Why is continuous integration considered to be a best practice?
7. In class it was stated that "testing is the easiest group to manage". Explain the reasoning behind this statement.
8. Describe the key elements of the Scrum Agile programming methodology.
9. Why is a workflow system for features important for managers?
10. What is a "non-functional requirement?"