

# CSC444H1F '05 Final Examination

2½ Hours - 100 marks total

Write all answers in the exam books provided.

## ***No Aids Allowed***

1. (5) When gathering metrics on defect arrivals and departures, what steps can be taken to ensure that the data is clean. Be specific and relate your answer to the defect tracking workflow.
2. (5) Assuming an organization has no written processes for developing software, explain the necessary steps to institute a process improvement program.
3. (20) Draw up a deterministic release plan for the following situation in a form similar to that explained in class (include the sections "Dates", "Capacity", "Requirement", and "Summary"). Include planned and estimated GA dates.
  - Five coders with work factors of 0.4, 0.5, 0.6, 0.6, and 0.9 and no vacation plans.
  - Fork on April 1, Dcut on July 1 (for simplicity, assume 22 working days per month)
  - 1:1:1 ratio of spec time to coding time to testing time
  - 10 features (Feature1 through Feature10) each estimated to take 24 ECDs to code.
4. (5) Define "dcut" (development cutoff). How does one test to see if dcut has been achieved?
5. (5) Why is the start of coding called "fork". What is forked? Why is it forked?
6. (10) Is the work factor a measure of productivity? Explain.
7. (20) Assuming that a fine-grained time-tracking system is gathering  $h_{j,k}$ , the number of dedicated hours spent by the  $j^{\text{th}}$  coder coding the  $k^{\text{th}}$  feature during the coding phase, give definitions for  $F$  (in terms of  $f_k$ ) and  $N$  (in terms of  $w_j$ ) and then prove that it must be the case that  $F = N \times T$ .
8. (10) What measures should be taken from a cultural perspective to improve the chances of being successful in introducing fine-grained time tracking into an organization.
9. (10) What measures can one take to smooth out resourcing needs from one release to the next. Explain how this works for each type of human resource.
10. (10) Describe the PROBE estimation method used by the PSP. Your answer is not required to include the actual formulas of the method, but it should mention and explain all the steps and decisions needed to perform an estimation.