CSC408F/CSC2105F Software Engineering   Fall 2004/2005
Mid Term Test (15% of course mark)   October 28, 2004

5 questions on 1 page. 100 marks total. 90 minutes total. Open Book and Notes. Answer ALL 5 questions. If you need to make any assumptions to answer a question, state those assumptions clearly in your answer book.

1. (15%) You are the chief architect in a software company. Can you explain when you can apply "Web Services" in software development, and when you cannot? Name 3 software in your company that can be reengineered with Web services, and 3 software that cannot. Support your arguments with +/- evidences.

2. (15%) What are the risks in a software development? How to evaluate the risk of an earthquake to the software development? Name 4 risk factors in the OmniEditor project and indicate measures that can prevent or mitigate them?

3. (15%) A competitor company A has a killer application K that dominates the market. You are recently employed by company B as a senior consultant, their application K' always has all the functionalities of K. What technical advices will you give to help take away K's market share?

4. (25%) You are managing the development of a large-scale software system which already has Y out of X components developed. According to your project estimation, the undeveloped components still need T person-month to finish, while you just have N team members including yourself. Now you are pressed to complete the system within as short as S months and you can and only can recruit M more junior developers. Will you meet the time pressure? If you can, how will you reorganize the team? If you cannot, why? Please answer according to the following three scenarios:

	X	Y	T	N	S	M
(1)	3	2	9	5	2	5
(2)	30	2	100	5	2	50
(3)	3	0	15	5	1	0

5. (30%) Here is a list of unfinished requirements specifications for the "Meeting Scheduler" system (including software and human as parts of the system):

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    Functional Requirements               Non-functional Requirements
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    0. Schedule Meeting                   1. Minimal effort
       0.1 Collect Timetable                 1.1 Collection effort
          0.1.1 By Person                     1.2 Matching effort
             0.1.1.1 By email, fax and letters  2. Good Quality
             0.1.1.2 By email                   2.1 Minimal conflicts
          0.1.2 By System                       2.2 Good participation
             0.1.2.1 Have updated time table
             0.1.2.2 Collect them
       0.2 Choose Schedule
          0.2.1 Manually
          0.2.2 Automatically
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    (a) For each functional requirement to the left, express its goal, input, output, pre/post conditions, exceptions.

    (b) Relate the tasks at the left hand side with the criteria at the right hand side using positive [+] or negative [-] relations (E.g. 0.1.1 [-]$\rightarrow$ 1.1), then indicate which functional tasks are needed to fulfil the top level requirements "0" and "1", regardless to "2".