Problem Analysis and Solution requirements

Examination 30th January 2009

Keep your answers short and informative.

1. "One person's solution is another person's problem." Given and explain an example of this, e.g. from the project you analyzed during the course.
2. "Software requirements are *what* a SW system must do, SW design is *how* it must do it." Explain what is wrong with this statement.
3. Explain the difference between desires and goals, using an example.
4. The engineering argument relates a solution to its environment and to goals to be achieved. Explain your answer to the following two questions by means of an example.
   a) What are environment assumptions?
   b) What happens if the assumptions in the argument are false?
5. Explain why goal-oriented RE may bring you beyond your problem solving charter.
6. Explain the difference between features and advantages in terms of customer goals.
7. What is the difference between a goal definition tree and a goal theory? Explain by means of examples (please draw a tree and a graph).
8. What is the relation between a problem theory and a goal theory?
9. Some problems are opportunity-driven. Explain by means of an example.
10. Solutions can be validated in several different ways. Four ways to validate are by illustration, by lab demo, by field demo, and by action research. Explain these by means of examples.
11. The research cycle can itself be structured as an engineering cycle. Describe the research cycle by means of an example, and for each of its parts give an example of a task to be performed.
12. The concept of external validity has been defined for solutions to practical problems as well as for answers to research problems. Explain the difference between these two concepts, using examples.
13. The following is a practical problem.

   > The Greenery is a cooperation of 7000 vegetable & fruit farmers, which owns 70 different companies in this value chain. Find out how the value chain of the Greenery can be improved to deal with growing competition.

   a) Structure this problem according to the engineering cycle
   b) For each part of this engineering cycle, give a knowledge problem to be solved in that part.

Points:

1	2	3	4	5	6	7	8	9	10	11	12	13a	13b
5	5	5	6	6	5	10	6	6	10	10	4	6	6

Exam Grade = (10 + Points) / 10