Problem Analysis and Solution requirements

Examination 1ˢᵗ April 2008

o Keep your answers short and informative.
o Explain your answer!
o Write your answers in English

1. The engineering cycle contains a feedback and a feed forward task. Explain by means of an example.

2. (a) What is a problem-solving charter?

   (b) Explain why goal-oriented RE may bring you beyond your problem solving charter

3. Explain the difference between goals, objectives and targets by means of examples.

4. Wicked problems are problems where the problem investigation itself is problematic. Problem investigation consists of identification, definition, structuring and diagnosis of a problem.

   - (a) For each of these problem investigation tasks, give one example of a problematic problem.

   - (b) Simon, Lindblom and Rittel each give recommendations for how to deal with wicked problems. Give and explain two of these recommendations.

5. Which of these statements express assumptions and which express requirements?

   - This software will run on any Linux platform

   - This software should run on any Linux platform

   - The participant must have followed the database course

   - The database course requires no knowledge of programming languages

6. The engineering argument has the form ``if solution S is inserted in domain D, goals G will be achieved.'' Give the structure of the engineering argument in the following examples:

   (a) Select and implement a logistic financial package with an eye to future IT developments

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

(c) Design an architecture for exchange of information about diagnosis-treatment combinations (DTCs) aming insurance conpanies and hospitals.

7. (a) What is the difference between a practical problem and a knowledge problem?

   (b) Classify the following problems as practical or knowledge problems

   - *What is the complexity of this algorithm?*

   - *Can we use a WFMS to improve our processes?*

   - *Which COTS system satisfies our requirements?*

   - *What are the possible architectures of an electronic patient file system?*

   - *Is there an algorithm for this with linear complexity?*

8. Explain why we need sensitivity analysis to validate a solution to a practical problem.

9. What is the difference between internal and external validity to a knowledge problem?

Points:

1	2a	2b	3	4a	4b	5	6a	6b	6c	7a	7b	8	9
6	6	6	6	8	6	8	6	6	6	6	10	4	6

Grade = (10 + Points) / 10