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EXAM Advanced Requirements Engineering (ARE) January 29th, 2010, 15.15-17.15

Instructions (please read carefully):

- This is a closed book exam it is not allowed to consult any material physical or electronic. Be sure to switch mobile phones off and store them in a closed bag.
- Use this exam to write the answers on questions. Use the available boxes after each question for your answer. Do not write outside the boxes
- Be sure to indicate name and student number on each sheet of paper.
- Concise yet complete answers are better than long-winded answers.
- You may answer in English on in Dutch.
- Grade for this exam is Round (Sumof Points / 10).
- Grade for the ARE course is 0.7* this exam + 0.3 * group assignments. On TIS, you will be reported the final grade for the ARE course.
- This exam has six pages.

Success!

Group assignment

Before starting with the exam, please indicate below whether you did your group assignment.

Yes/No I did my assignment

Question 1 Requirements Engineering (34 points)

a) According to the logical positivistic approach, requirements should be refutable (11 points). Explain, by means of an example, what a refutable requirement is.

A refutable requirement is ...

b) Supporters of Kuhn argue that the chosen paradigm for requirement expression is important. Explain what is meant by "paradigm" in the context of Requirements Engineering and give an example (11 points).

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Question 2 Problem Frames (33 points)

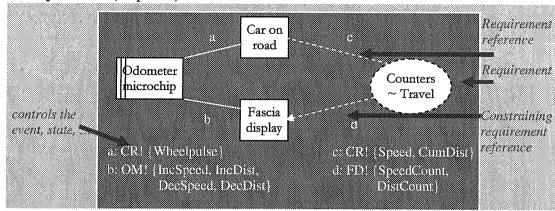
a) One of the main contributions of Jackson's Problem Frames approach is the identification of *five* basic problem frames. Mention these basic problem frames and explain each frame briefly. (11 points):

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c) Another construct that Jackson uses in his Problem Frames approach is the "Requirement" (see also the example below). The "Requirement" refers to domains; these relations between "Requirement" and "Domain" are called "Requirement References".

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The diagram below expresses a requirement. Explain - in text – the stated requirement. (11 points)



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Question 3 Goal Modeling (33 points)

a) *i** consists out of two models: the Strategic Rational model and the Strategic Dependency model. How does the Strategic Rational model complement the Strategic Dependency model? (8 point)

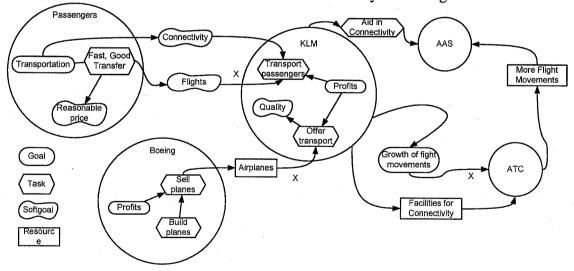
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b) There are two appropriate moments to utilize goal oriented requirements engineering (GORE) during a requirements engineering exercise. Name both moments and explain your answer. (12 points)

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c) Consider the following case description and corresponding Strategic Dependency model. Identify four errors. Note that missing dependencies are **not** considered as errors. (13 points)

In the Dutch aviation a number of actors dependent on each other (see Strategic Dependency model below). KLM is a large airliner and transfers people from one destination to another via Amsterdam Airport Schiphol (AAS). So Amsterdam is not de final destination for many passengers. Getting passengers from incoming planes to outgoing planes is also referred to as "connectivity". However, KLM cannot offer connectivity on its own. Aid is needed from AAS and the Air Traffic Control (ATC). AAS provides an airport and facilities for connectivity. ATC provides flight movements (eg. guiding of planes in Dutch airspace). Normally there is a shortage of flight movements, but due to the financial crisis there is currently no shortage.



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