Student name:	
Student number:	

EXAM Advanced Requirements Engineering (ARE)

February 1st, 2008, 12.00-14.00

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 or 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 four pages.*

Success!

Group assignment

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

Yes/No	I did my assignment
	in year (2006) (tick if appropriate)
	in year (2007) (tick if appropriate)
	in year (2008) (tick if appropriate)

Question 1 Requirements Engineering (34 points)

a) Mention three different requirements *elicitation* methods, and explain these briefly. (18 points).

1. …

2. …

3. …

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b) Suppose that you have access to a report of consultants, which presents, for a specific company, the structure of a to-be developed database. The report includes a class diagram but also discusses how the consultants came to this class diagram, in terms of the elicitation process, modeling, and analysis.

In the paper of Akkermans and Gordijn ("What is this Science called Requirements Engineering?"), various forms of validation are introduced. Usually, these forms of validation are applied to requirements engineering *research*, but they can equally well be applied to requirements engineering *as done by consultants for a real-life company*.

Now, suppose that you have been asked to *assess the validity* of the report of the consultants. Explain then what the following forms of validity mean, in terms of validity of the report of the consultants. (16 points)?

Descriptive validity:

Reasoning validity:

Internal validity:

Question 2 Problem Frames (33 points)

a) Michael Jackson's problem frames contain two quite similar frames: the Required Behavior frame, and the Commanded Behavior frame. Explain the difference between both frames. (16 points)

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Required Behavior frame:

Commanded Behavior frame:

b) Use cases and problem frames both incorporate context of an information system. However, they do so in the different ways. Explain how both techniques incorporate context, such that the difference becomes clear. (17 points)

A use case shows context by …

A problem frame shows context by …

Question 3 Goal modeling (33 points)

a) In the requirements engineering cycle, goal modeling can be used at various stages and for various purposes, one being finding solutions by modeling alternatives to meet specific goals. Two more purposes of goal modeling were mentioned. Mention both and briefly explain them (16 points).

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Purpose 1:

Purpose 1:

b) The *i** goal modeling technique is an example of early requirements engineering. Explain what early requirements engineering is, and why we should do it. (17 points).

1. Early requirements engineering is …

2. We should do early requirements engineering because of …