CHALMERS UNIVERSITY OF TECHNOLOGY
Department of Computer Science and Engineering
Examination in Computer Security EDA263 (DIT641) for the International Master's Program
in Computer Systems and Networks, Wednesday 28 August 2019, 14:00—18:00

Examiner: Associate professor Magnus Almgren, Ph.031-772 1702,
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Teacher available during exam: Magnus Almgren, Ph.031-772 1702

Language: Answers and solutions must be given in English.

Grades: will be posted before Wednesday 19 September 2019. The exam review date/place
will be announced on the home page when the grades have been posted.

You are **not** allowed to use any means of aid.
However, according to general rules printed English language dictionaries are allowed.

*Please write the answer to each question (question 1, question 2, etc) on a separate sheet of
paper.*

Grade: The grade is normally determined as follows:

30 p ≤ grade 3 < 38 p ≤ grade 4 < 46 p ≤ grade 5 (EDA263)

30 p ≤ pass < 46 p ≤ pass with distinction (DIT641)

4 Security Models (10 p)

You are working for a law firm with the following eight clients:

New York Times, Bank of Scotland, Scandinavian Airlines, Bank of England,
Air France, Los Angeles Times, American Airlines, Bank of Wales.

The law firm is using the *Chinese Wall Model*.

   a) Draw a figure, showing how this (general) model would look in the specific example for this law firm. Show in the picture the three levels information is organized into and explain them with a possible concrete example.
   b) Define the simple security rule formally in the following way:
Simple Security Rule: A subject S can read object O only if ...
   c) Alice and Bob work for the law firm. State whether the following *read* accesses (performed in the order shown here) will be accepted or denied. Use your answer in (b) to explain your reasoning.
   1) Alice reads a document outlining which new offices will open in 2014 for Bank of Wales.
   2) Alice reads a document outlining which new offices will open in 2014 for Bank of England.
   3) Alice reads a document outlining which new offices will open in 2014 for Air France.
   4) Bob reads a document outlining which new offices will open in 2014 for Air France.
   5) Alice reads a document outlining which new offices will open in 2014 for Bank of England.
   6) Bob reads a document outlining which new offices will open in 2014 for New York Times.
   7) Alice reads a document outlining the yearly summary of earnings / losses for Bank of Wales.
   8) Alice reads a document outlining the yearly summary of earnings / losses for Bank of Wales.
   9) Bob reads a document outlining the yearly summary of earnings / losses for Bank of Wales.
   10) Alice reads a document outlining the yearly summary of earnings / losses for Air France.
   11) Bob reads a document outlining the yearly summary of earnings / losses for Air France.
   12) Alice reads a document outlining which new offices will open in 2014 for Bank of Wales.

(10 p)