

Two hours - on line

The exam will be taken on line.
This paper version is made available as a backup
In this event, only MCQ answers written in the boxes on the exam paper will be marked.

EXAM PAPER MUST NOT BE REMOVED FROM THE EXAM ROOM

**UNIVERSITY OF MANCHESTER
SCHOOL OF COMPUTER SCIENCE**

Modelling Data on the Web

Date: Wednesday 20th January 2016

Time: 09:45 - 11:45

Please answer ALL Questions provided

**The exam contains MULTIPLE CHOICE, TRUE/FALSE and SHORT ESSAY QUESTIONS.
Be sure to answer ALL Questions.**

Please note that wrong answers on MULTIPLE CHOICE and TRUE/FALSE questions may be penalized (i.e. receive some small negative mark) so random guessing works against you.

This is a CLOSED book examination

The use of electronic calculators is NOT permitted

On Line Examination

Q1 – Q21 contain Multiple Choice Questions and are therefore restricted

22. Sketch out a RelaxNG schema for the following snippet of XML to record simplified data of a veterinary clinic (minor syntax errors will be ignored):

```

<clientList>
  <client FirstName="Bob" LastName="Builder" age="19">
    <owns>
      <cat name="Kitty" age="1"/>
      <cat name="Katty" age="10"/>
    </owns>
  </client>
  <client FirstName="Bill" LastName="Pooter" age="45">
    <owns>
      <dog name="Colin" age="3" breed="Terrier"/>
      <cat name="Tiger" age="10" breed="Siamese"/>
    </owns>
    <caresFor>
      <dog name="Bento" age="4" breed="Shephard"/>
    </caresFor>
  </client>
  <client FirstName="Mary" LastName="Smiley" age="73">
    <caresFor>
      <cat name="Tilly" age="7"/>
      <dog name="Bruno" age="4" breed="Poodle"/>
      <cat name="Molly" age="5"/>
    </caresFor>
  </client>
</clientList>

```

(5 marks)

23. Briefly (in no more than 300 words) discuss the advantages and disadvantages of there being a range of different schema languages for XML documents. (6 marks)
24. Briefly (in no more than 300 words) discuss the following proposition: SQL and the relational model are a bad fit for the Web. (6 marks)
25. Briefly (i.e., 400 words), describe a modelling scenario where a *polypersistence* strategy makes sense (in particular, please state *which* data models are to be used, e.g., SQL and XML). Articulate the strengths and weaknesses of a such a strategy in your scenario. (6 marks)