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):

```xml
<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)