Two hours - on line

The exam will be taken on line.
This is the paper format, which will be available as a backup

THE QUESTION PAPER MUST NOT BE REMOVED FROM
THE EXAM ROOM AND MUST BE RETURNED

UNIVERSITY OF MANCHESTER
SCHOOL OF COMPUTER SCIENCE

Knowledge Representation and Reasoning

Date:   Friday 17th May 2013
Time:   14:00 - 16:00

Please answer ALL Questions provided.

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

This is a CLOSED book examination
The use of electronic calculators is NOT permitted

[PTO]
Section A is restricted and cannot be published
26. Given the following sentences in English:

Roses are red.
Violets are blue.
Nothing that is blue is also red.
Roses are not violets.

and the encodings in the table below, compare and contrast the encodings from a knowledge engineering perspective (e.g., correctness, usability, extensibility, etc.). Be sure to discuss how the choice of formalism contributes (if it does!) to the advantages or disadvantages of each representation. (5 marks)

<table>
<thead>
<tr>
<th></th>
<th>Prop logic</th>
<th>ALC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Rose → Red</td>
<td>Rose ⊑ Red</td>
</tr>
<tr>
<td>2</td>
<td>Violet → Blue</td>
<td>Violet ⊑ Blue</td>
</tr>
<tr>
<td>3</td>
<td>Blue → ∼Red</td>
<td>Blue ⊑ ¬Red</td>
</tr>
<tr>
<td>4</td>
<td>Rose → ∼Violet</td>
<td>Rose ⊑ ¬Violet</td>
</tr>
</tbody>
</table>

27. Using OWL as a running example, explain the engineering tradeoffs embodied in the design triangle:

(5 marks)

28. Compare and contrast OWL (as a logic based language) with SKOS (a navigation oriented language). Be sure to discuss analogous constructs (e.g., SubClassOf vs. skos:narrower) and what sorts of applications they are each suited (or not suited) for. (5 marks)