

THIS PAPER MUST NOT BE
REMOVED FROM THE
EXAMINATION ROOM

STUDENT'S NAME: _____

STUDENT'S NO.: _____

THE UNIVERSITY OF QUEENSLAND

School of Information Technology & Electrical Engineering

<First Semester Examination, 2005>

INFS3101/INFS7100

Ontology and the Semantic Web

TIME: **TWO** hours for working

TEN minutes for perusal before examination begins

ANSWER ALL QUESTIONS ON EXAMINATION PAPER

Additional sheets will be provided for working. These will be collected and destroyed.

**ALL QUESTIONS CARRY MARKS INDICATED
EXAMINATION CARRIES A TOTAL OF 60 MARKS.**

Drawing instruments and one electronic calculator may be used but NO pre-programmed material or calculator instruction booklets are allowed in the examination room.

**INFS3101/INFS7100 Ontology and the Semantic Web
<First Semester Examination, 2005>**

1. In what sort of situation does semantic heterogeneity arise? What benefit would using an ontology be in that situation? Discuss at least three aspects of the issue, using concrete examples. [6 marks]

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<First Semester Examination, 2005>**

2. How do institutional facts work? Discuss at least three aspects of the issue, using concrete examples. [6 marks]

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<First Semester Examination, 2005>**

3. Many ontologies include objects which have parts. How do the unifying and identifying relations used to model complex objects interact with the subclass relationship? Illustrate your answer with concrete examples. [6 marks]

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<First Semester Examination, 2005>**

4. What is a subproperty? Illustrate your answer with a concrete example, showing how it is a subproperty. [6 marks]

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5. How is the BWW concept *history of a thing* related to the Dolce concepts *endurant* and *perdurant*? Discuss at least three aspects of the issue. [6 marks]

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<First Semester Examination, 2005>**

6. Gruber's fifth principle is "minimal ontological commitment". Explain how ontological commitment differs from the fourth principle "minimal encoding bias", using a concrete example. [6 marks]

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<First Semester Examination, 2005>**

7. What functionality does the construct `rdfs:Class` add to bare RDF? Discuss at least three aspects of the issue. [6 marks]

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<First Semester Examination, 2005>**

8. Describe two ways one can define a subclass in OWL. Illustrate each with a concrete example. [6 marks]

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<First Semester Examination, 2005>**

9. Define what is meant by a *bulk type* in terms of the metaproperties *unity* and *identity*. Give a concrete example of a bulk type, showing how it fits the definition. [6 marks]