

CONFIDENTIAL



UNIVERSITI TUN HUSSEIN ONN MALAYSIA

**FINAL EXAMINATION
SEMESTER II
SESSION 2015/2016**

COURSE NAME : WEB SEMANTIC
COURSE CODE : BIW 30803
PROGRAMME CODE : BIW
EXAMINATION DATE : JUNE / JULY 2016
DURATION : 2 HOURS 30 MINUTES
INSTRUCTION : ANSWER ALL QUESTIONS

THIS QUESTION PAPER CONSISTS OF **FOUR (4)** PAGES

CONFIDENTIAL

Q1 (a) Give **TWO (2)** limitations of syntactic web. (4 marks)

(b) Illustrate Semantic Web in a layered cake presentation. (12 marks)

Q2 (a) An online book store has following books:

```
<? xml version="1.0"?>
<books xmlns:xsi = 'http://www.w3.org/2001/ XMLSchema-instance'
xsi:noNamespaceSchemaLocation='book.xsd'>
<book>
    <title>Semantic Web</title>
    <author>Adha Adam</author>
    <price>250.00</price>
</book>
<book>
    <title>Software Engineering</title>
    <author>Adi Adni</author>
    <price>180.00</price>
</book>
</books>
```

Write a Data Type Definition (DTD) for the above Extensible Markup Language (XML) document. (7 marks)

(b) Consider a document containing an address as follows:

```
<label>
<name> Husna Adiba </name>
<address>
    <street> 189 Jalan Daeng Chelak </street>
    <city> Klang </city>
    <state>Selangor</state>
</address>
</label>
```

Rewrite the above XML document using *attributes*. (7 marks)

(c) Give **TWO (2)** differences between XML and Resource Description Framework (RDF). (4 marks)

Q3 Draw RDF graphs based on the following information:

(a) Information 1:

```
<?xml version="1.0"?>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
  xmlns:dc="http://purl.org/dc/elements/1.1/">
  <rdf:Description rdf:about="http://www.w3.org/">
    <dc:title>World Wide Web Consortium</dc:title>
  </rdf:Description>
</rdf:RDF>
```

(3 marks)

(b) Information 2:

- Zahra studies at UTHM
- UTHM has a website at <http://www.uthm.edu.my>
- Zahra is a friend of Nur
- Nur studies at USM
- USM has a website at <http://www.usm.my>
- Nur has a website at <http://www.usm.my/nur>

(13 marks)

Q4 (a) Based on Figure Q4,

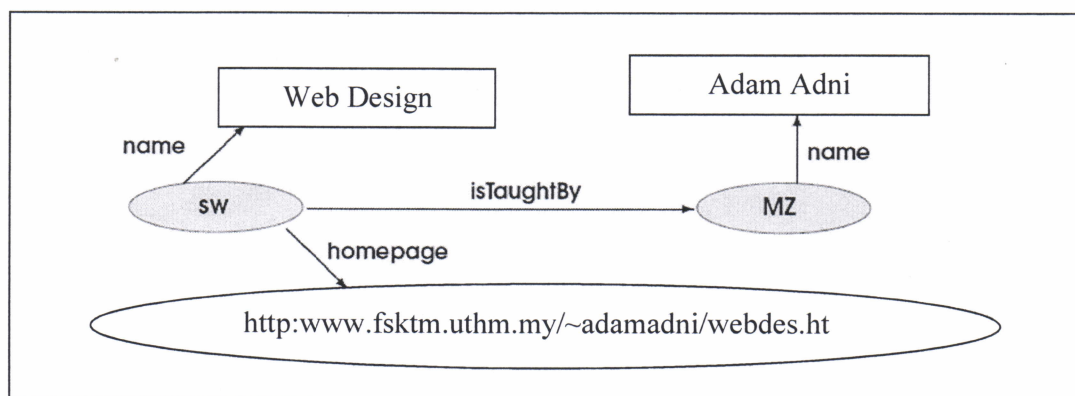


Figure Q4

(a) Write **FOUR (4)** triples for the above statements.

(4 marks)

(b) Translate the above semantic-net into XML-based RDF.

(10 marks)

- (c) The following is an excerpt from an RDF/XML document:

```
<rdf:Description rdf:about="01273"
  <uni:name>Morris Zapp</uni:name>
  <uni:title>Senior Lecturer</uni:title>
</rdf:Description>
```

Explain the use of the `about` attribute in this example.

(2 marks)

- Q5** (a) Define ontology.

(2 marks)

- (b) Model the following ontologies:

Man and Woman are subclasses of the Person class; hasParent is a property that links two persons. hasFather is a subproperty of hasParent and its range is constrained to the Man Class. hasChild is the inverse property of hasParent.

- (i) using RDF.

(7 marks)

- (ii) using OWL.

(10 marks)

-END OF QUESTION -