Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
SEMESTER II
SESSION 2017/2018

COURSE NAME	:	SEMANTIC WEB
COURSE CODE	:	BIW 30803
PROGRAMME CODE	:	BIW
EXAMINATION DATE	:	JUNE 2018 / JULY 2018
DURATION	:	3 HOURS
INSTRUCTION	:	ANSWER **ALL** QUESTIONS

THIS QUESTION PAPER CONSISTS OF **THREE (3)** PAGES

Q1 (a) Explain Semantic Web.

(2 marks)

(b) Differentiate between semantic web and syntactic web.

(2 marks)

(c) Illustrate Semantic Web in a layered cake presentation.

(12 marks)

Q2 Create XML codes for the following statements :

(a)

```
<p> The lecture notes on : <br />
<i> Semantic Web </i>
Author of the notes <br />
<b> Haneena  </b>
```

(4 marks)

(b) Haneena and Co. has a telephone directory that records the first and last name, telephone number and email address of everyone working in the company. Departments are the main organizing unit of the company so the telephone directory is typically displayed in department order and shows the telephone number, fax number and email address for each department.

(8 marks)

Q3 Based on the following information:

The social security number (123456789A), the first name of a person is Adha, and his last name is Hadif, his address is composed of postcode (86400), city (Batu Pahat) and street (Jalan Puding), and his telephone numbers are 12345 and 67890.

(a) Create an XML file.

(7 marks)

(b) Draw a tree diagram of the document given in **Q3(a).**

(7 marks)

(c) Write a Document Type Definition (DTD) for the XML-document specified in **Q3(a).**

(7 marks)

Q4 (a) Define ontology.

(1 mark)

(b) Illustrate the following as an ontology :

- Herbivores, Carnivores, and Omnivores are animals
- People are omnivores
- People have names of type "string"
- Vegetarians are people who are herbivores
- "eats" is a property of animals and the values of the property must be of the type "food"
- Meat and Veggies are types of food

(i) using Resource Desription Framework (RDF).

(12 marks)

(ii) using Web Ontology Language (OWL).

(10 marks)

Q5 Construct RDF tree diagram and RDF codes representing the following statements:

(a)
```
Document 1 has been created by Adni
Document 2 and document 3 have been created by the same author (who
is unknown)
Document 3 says that document 1 has been published by W3C
```

Use `dc:Creator` and `dc:Publisher` predicates, and assume that the three documents are represented by URIs doc1, doc2, doc3, respectively.

(9 marks)

(b)
```
URI1 and URI2 are classes
URI3 is a property
URI4 is an instance of class URI1
URI5 and URI6 are instances of class URI2
URI3 has domain URI1 and range URI2
(URI6,URI4) is an instance of property URI3
```

(9 marks)

-END OF QUESTION -