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**UNIVERSITI TUN HUSSEIN ONN MALAYSIA**

**FINAL EXAMINATION  
SEMESTER I  
SESSION 2021/2022**

COURSE NAME : SEMANTIC WEB  
COURSE CODE : BIW 30803  
PROGRAMME CODE : BIW  
EXAMINATION DATE : JANUARY / FEBRUARY 2022  
DURATION : 3 HOURS  
INSTRUCTION : 1. ANSWER ALL QUESTIONS.  
2. THIS FINAL EXAMINATION IS CONDUCTED ONLINE AND CLOSE BOOK.

**TERBUKA**

THIS QUESTION PAPER CONSISTS OF FIVE (5) PAGES

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**Q1** (a) Explain linked data. (1 mark)

(b) Explain the relation between linked data and semantic web. (2 marks)

**Q2** (a) Consider the following **Table Q2(a)** :

**Table Q2(a)**

First Name	Last Name	State	Salary (RM)
Mukriz	Niyaz	Johor	2000
Nia	Marissa	Selangor	4000
Mizan	Nilam	Perak	3000

Write a Document Type Definition (DTD) for the above data records. (8 marks)

(b) Consider four documents containing an email as follows:

```
Email 1 :  
  
<note date="12/11/2002">  
  <to>Tove</to>  
  <from>Jani</from>  
  <heading>Reminder</heading>  
  <body>Don't forget me this weekend!</body>  
</note>
```

```
Email 2 :  
  
<note>  
  <date>12/11/2002</date>  
  <to>Tove</to>  
  <from>Jani</from>  
  <heading>Reminder</heading>  
  <body>Don't forget me this weekend!</body>  
</note>
```



```

Email 3 :

<note>
  <date>
    <day>12</day>
    <month>11</month>
    <year>2002</year>
  </date>
  <to>Tove</to>
  <from>Jani</from>
  <heading>Reminder</heading>
  <body>Don't forget me this weekend!</body>
</note>

Email 4 :

<note day="12" month="11" year="2002"
to="Tove" from="Jani" heading="Reminder"
body="Don't forget me this weekend!">
</note>

```

Figure Q2(b)

- (i) Choose the best XML format to store the email information. (1 mark)
- (ii) Justify your choice in Q2(b)(i) based on the arrangement of elements and attributes. (4 marks)

Q3 (a) Write RDF based XML annotation for the following scenario :

Fitri is a 23 years old Malaysian student at UTHM. He speaks fluently English and Malay. He decides to learn Mandarin. Together with his friends, Din and Faiza, he subscribes for the Mandarin course taught by Prof. Lai Lin every Thursday at the UTHM Language Center. Fitri is quite talented and makes quick progress. Prof. Lai Lin notices that Fitri needs to practice speaking in Mandarin, so he tells him about another student at UTHM, named Husna Diyana. Husna Diyana is a Malay girl who speaks very good English and is eager to learn Mandarin. Fitri meets Husna Diyana and they become tandem partners. Having somebody to practice with proves to be very useful and soon Fitri speaks fluently Mandarin.

(12 marks)

(b) Consider semantic graphs in **Figure Q3(b)**. Analyze the semantic graphs and construct RDF statements which consists of :

- (i) RDF description
- (ii) RDF resources
- (iii) RDF properties
- (iv) RDF values

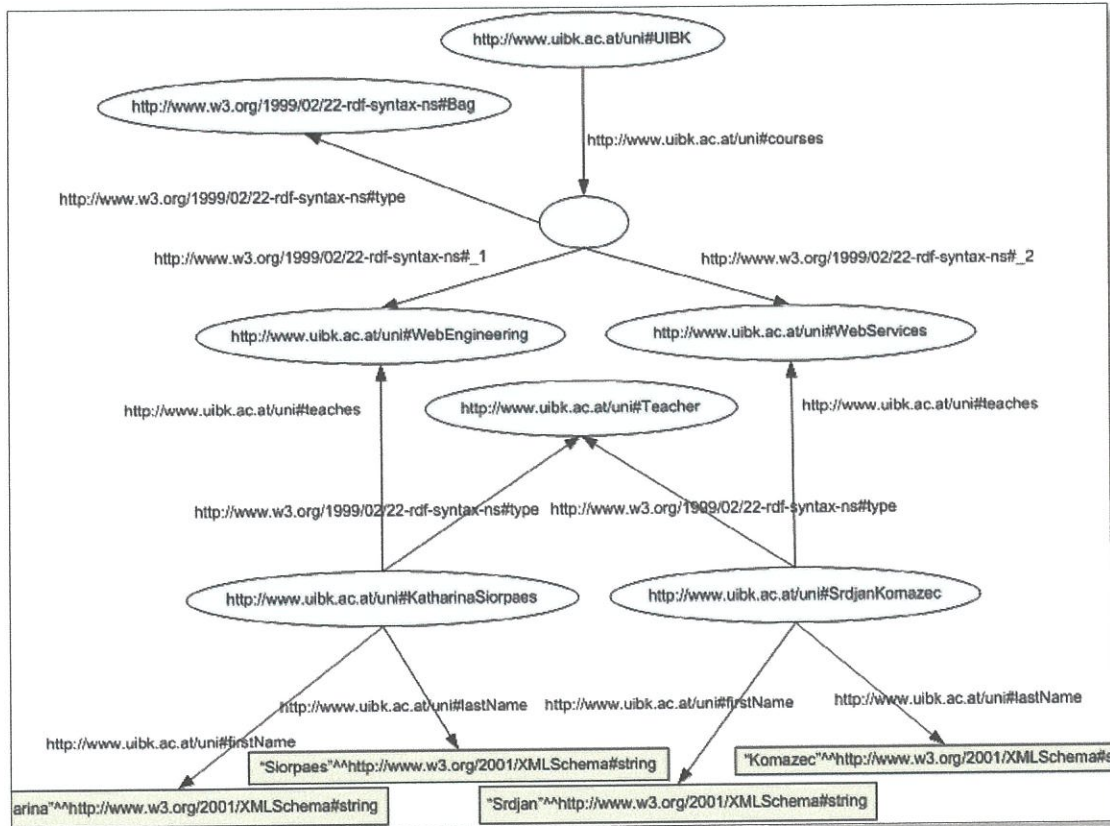


Figure Q3(b)

(12 marks)

Q4 Consider the following task scenario :

Football Club Team (FCT) Parit Raja is a non-profit organization. The club is based in Parit Raja. The manager Mr X is the President of the Club Committee and Mr Y is the Chief Executive. Mr Z is the trainer of the team. A, B and C are team players. Manager, trainers and players are members of the FCT. Every player is trained by the trainer.

Write the description of Football Club Team using RDF annotation.

(14 marks)

