UTHM
Universiti Tun Hussein Onn Malaysia

UNIVERSITI TUN HUSSEIN ONN MALAYSIA

FINAL EXAMINATION
(ONLINE)
SEMESTER II
SESSION 2019/2020

COURSE NAME   : SEMANTIC WEB

COURSE CODE   : BIW 30803

PROGRAMME CODE   : BIW

EXAMINATION DATE   : JULY 2020

DURATION   : 3 HOURS

INSTRUCTION   : 1. ANSWER **ALL** QUESTIONS.

                           2. PLEASE MAKE SURE TO CLICK "SAVE ANSWER" BUTTON FOR SUBJECTIVE QUESTIONS.

TERBUKA

THIS QUESTION PAPER CONSISTS OF **FIVE (5)** PAGES

Q1   Consider an online movie review site that publishes its movie and review data as XML. Part of the data is as follows:

```
Movies, Movie, MovieID, Stars, Comment
```

(a) Write an XML documents for the above element with your own data records.

(10 marks)

(b) Write a Document Type Definition (DTD) for the above element with your own data records.

(10 marks)

Q2   (a)   Construct Resource Description Framework (RDF) graphs based on the following information:

(i)   Information 1:

Table Q2(a)(i)

Title	Artist	Country	Price	Year
Anak Itik Tok Wi	Didi and Friends	Malaysia	RM 20.50	2015
Boboi Boy	Papa Zola	Malaysia	RM 20.50	2014

(8 marks)

TERBUKA

2

(ii)   Information 2:

> *Fitri is a 23 year 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.*

(10 marks)

(iii)   Information 3

- 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

(6 marks)

(b)   Consider semantic graphs in **Figure Q2(b)**. Analyze the semantic graphs and construct RDF statements which consists of:

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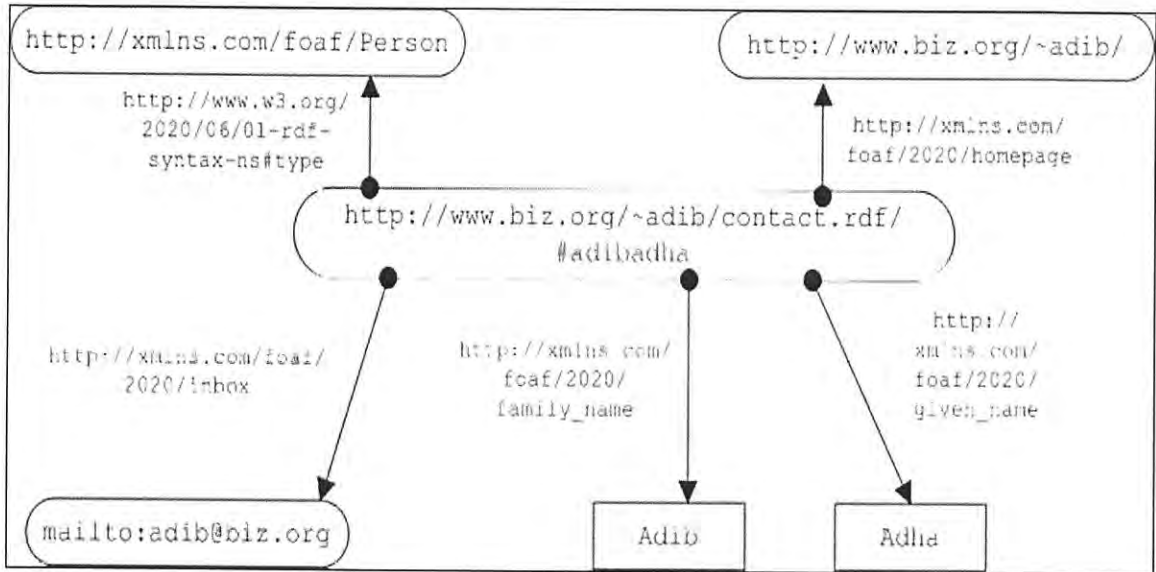(iii)   RDF properties
(iv)   RDF values

3

Figure Q2(b)

(12 marks)

Q3   Consider a task scenario below :

```
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 Resource Description Framework
Schema (RDFS) annotation.

(14 marks)

CONFIDENTIAL

Q4   Model the following ontologies using Web Ontologies Language (OWL) :

(a)   Eldest and youngest are subclasses of the Sibling class; sameParent is a property that links two siblings. sameFather is a subproperty of sameParent and its range is constrained to the Eldest class. sameChild is the inverse property of sameParent

(10 marks)

(b)   Consider a Rabbit which is a sub-concept of the concept Animal. Herbivore is a concept whose members are exactly those animals who eat only plants Adult_Rabbit is a concept whose members are exactly those rabbits older than 3. Adult rabbits might have kids who are again rabbits Billy is a rabbit Billy is 4 years old. Billy is the child of Belly.

(10 marks)

-END OF QUESTION -

5