Student Exam No. _____

GANPAT UNIVERSITY

M. Tech. Semester: III

Computer Engineering/ Information Technology

Regular Examination November-2014

3CE301/3IT301: Semantic Web (Elective III)

Time: 3 Hours **Total Marks: 70**

Instructions: 1. Attempt all questions.
2. Figures to the right indicate full marks.
3. Each section should be written in a separate answer book.

SECTION – I

Que.1 **[A]** Explain a layered approach to the Semantic Web with Diagram **[6]**

[B] Write **DTD** file for email information and also write well-formed XML to store this information against DTD. Where, elements contain head (from, to, cc, bcc (Use Cardinality), body (text, attachment), encoding ("mime" or "binhex" where "mime" is the default value). **[6]**

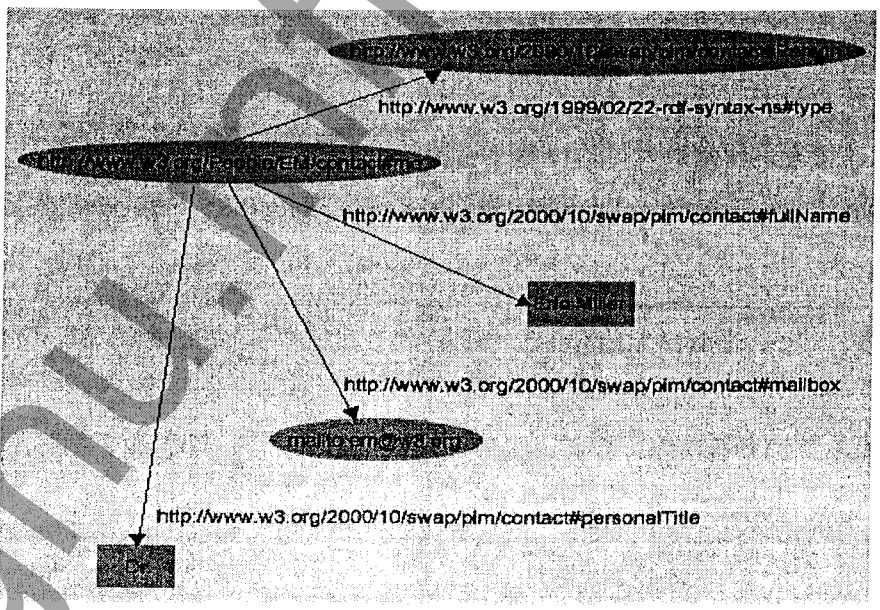
OR

Que.1 **[A]** Give and explain at least 3 areas where semantic web is useful. **[6]**

[B] Write **.XSL** file for email information and also Write well-formed XML to store this information against .XSL. Where, elements contain head (from, to, cc, bcc (Use Cardinality), body (text, attachment), encoding ("mime" or "binhex" where "mime" is the default value). **[6]**

Que.2 **[A]** What are the drawbacks of XML? Describe the difference between RDF and RDFS. **[4]**

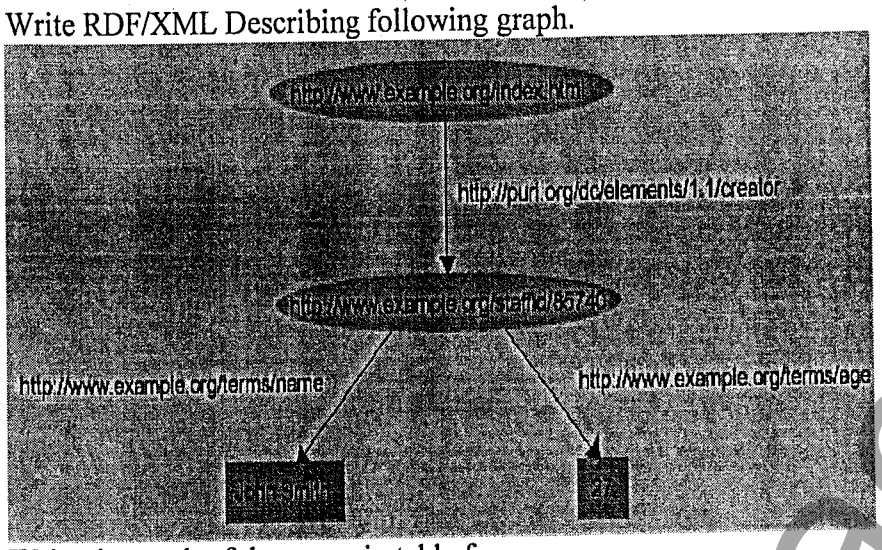
[B] Write RDF/XML Describing following graph. **[4]**



[C] Define XML. Explain advantages and disadvantages of XML over HTML. **[3]**

OR

Que.2 **[A]** Write RDF/XML Describing following graph. **[6]**



[B] Write the result of the query in table form. **[5]**

Given the following RDF triples:

```
@prefix table:
<http://www.daml.org/2003/01/periodictable/PeriodicTable#> .
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#>
table:elem1 rdf:type table:Element .
table:elem1 table:name "sodium" .
table:elem1 table:atomicWeight 22.989770 .
table:elem1 table:atomicNumber 11 .
table:elem1 table:color "silvery white" .
table:elem2 rdf:type table:Element .
table:elem2 table:name "nitrogen" .
table:elem2 table:atomicWeight 14.0067 .
table:elem2 table:atomicNumber 7 .
table:elem2 table:color "colourless" .
table:elem3 rdf:type table:Element .
table:elem3 table:name "copper" .
table:elem3 table:atomicWeight 63.546 .
table:elem3 table:atomicNumber 29 .
table:elem4 rdf:type table:Element .
table:elem4 table:name "nichel" .
table:elem4 table:atomicWeight 58.6934 .
table:elem4 table:atomicNumber 28 .
table:elem4 table:color "lustrous, metallic" .
```

Write a SPARQL query that returns all the elements in the periodic table (the name of the element and its color if present in the RDF file) whose atomic weight is between 20.0 and80.0, ordered by descending atomic number.

Que. 3 **[A]** Explain Container element of RDF with example. What do you mean by Reification? Explain with example. **[4]**

[B] Describe Description Logic Programs (DLP) in detail with Restrictions in OWL. **[8]**

SECTION – II

Que.4	**[A]**	What is ontology? List the Types of Ontologies with diagram.	**[4]**
	[B]	What are the relationships between ontologies and knowledge bases?	**[4]**
	[C]	List the Libraries of Ontologies and define Relationship between ontologies in the library.	**[4]**

OR

Que.4	**[A]**	Differentiate Implicit vs. Explicit Ontologies.	**[4]**
	[B]	What are the limitations of the expressive power of RDF Schema? How ontology can overcome the limitations of RDF Schema?	**[8]**
Que.5	**[A]**	Explain Monotonic and Non-monotonic rules with examples.	**[5]**
	[B]	What are the uses of ontologies in applications? Explain any two well known ontologies.	**[6]**

OR

Que.5	**[A]**	Write OWL document to define some named pizzas: [1] Create a subclass of "pizza", called "NamedPizza", and a subclass of "NamedPizza" called "MargheritaPizza". [2] Create a "CheesyPizza" Class and add a restriction: "Every CheesyPizza must have at least one CheeseTopping". [3] Create a "hasSpiciness" object property.	**[5]**
	[B]	Explain Data Type and its Restriction for XML-SCHEMA in detail with example.	**[6]**
Que.6	**[A]**	How semantic web technology is applied to Elsevier for Horizontal Information Products. Give problem, contribution of Semantic Web and the result.	**[8]**
	[B]	Explain Three Species of OWL in detail	**[4]**

END OF PAPER