

**Indian Statistical Institute  
Documentation Research and Training Centre**

**MS in Library and Information Science  
Mid-Semester Exam (IV semester) (2017-2019)**

**Paper –20 : SEMANTIC WEB**

**Date:** 25.02.2019

**Max Marks:** 40  
**Time:** 90 minutes

*Answer any four questions. All questions carry equal marks.*

- ✓ 1. (a) Describe open world vs. closed world assumption. [5+5]  
(b) Briefly, describe rdfs:domain and rdfs:range.
2. What is Semantic Web (SW)? Discuss the motivations of semantic web. [2+8]
3. Briefly, describe the following three semantic web technologies *RDF*, *Ontology*, and *Logic*. [10]
- ✓ 4. (a) Produce an RDF Graph based on the following RDF/XML code. [6]

```
<?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/"
  xmlns:foaf="http://xmlns.com/foaf/0.99/">
  <rdf:Description rdf:about="http://www.isko.org/journal/jkopub/2014/fromkotokr">
    <rdf:type rdf:resource="http://www.isko.org/journal"/>
    <dc:creator rdf:nodeID="x"/>
    <dc:creator rdf:nodeID="y"/>
  </rdf:Description>
  <rdf:Description rdf:nodeID="x">
    <rdf:type rdf:resource="http://www.example.org/person"/>
    <foaf:name>Fausto Giunchiglia</foaf:name>
    <foaf:organization>University of Trento</foaf:organization>
  </rdf:Description>
  <rdf:Description rdf:nodeID="y">
    <rdf:type rdf:resource="http://www.example.org/person"/>
    <foaf:name>E. Maltese</foaf:name>
    <foaf:organization>University of Trento</foaf:organization>
  </rdf:Description>
</rdf:RDF>
```

[PTO]

(b) Assuming the following RDF data

```
<http://example.org/#john> <http://www.w3.org/2001/vcard-rdf/3.0#FN> "John Smith"  
<http://example.org/#john> <http://example.org/#hasAge> "32"  
<http://example.org/#john> <http://example.org/#hasChild> <http://example.org/#Harry>  
<http://example.org/#Harry> <http://www.w3.org/2001/vcard-rdf/3.0#FN> "Harry Smith"  
<http://example.org/#maryHarry> <http://example.org/#hasAge> "29"
```

Extend the above RDF data by adding RDFS class information about *persons* and their *blood relation*. Write only those additional triples. [4]

5. What are the primary differences between a traditional classification schema and an ontology? Point out to the various limitations of RDFS as an ontology language. [4+6]
6. (a) Write a short note on Semantic net.  
(b) Write a short note on Turtle. [5+5]

Handwritten RDFS triples:

```
:hasChild rdfs:domain :Person  
:hasChild rdfs:range :Person  
:Person rdfs:subClassOf rdfs:Class  
:JohnSmith rdfs:type :Person  
:HarrySmith rdfs:type :Person
```