

i Introduction to part 1: General questions

In this task, you get 22 multiple choice questions. Selecting the correct answer gives +1 point, whereas wrong answers give -1 point. An empty answer gives 0 points.

You should try to finish this task in less than 25 minutes. It counts around 14% of the exam.

1 INFO216 - LOD acronym

LOD is an acronym for

Select one alternative:

- Linguistic Online Documents
- Live Online Data
- Lean Open Data
- Linked Open Data



Maximum marks: 1

2 INFO216 - not a core LOD principle

Which is NOT one of the four core LOD principles?

Select one alternative:

- Use URIs that answer to HTTP requests
- URIs return information about resources on standard semantic formats
- Use URIs that are language-independent.
- Use URIs to identify resources
- URIs return information that contain URIs of related resources



Maximum marks: 1

3 INFO216 - not a LOD best practice

Which is NOT a best practice for data provisioning in the LOD cloud?

Select one alternative:

- Map proprietary vocabulary terms to other vocabularies
- Use URIs that are standardised by the W3C
- Make proprietary vocabulary terms dereferencable
- Refer to additional access methods (e.g., SPARQL)
- Provide dataset-level metadata (e.g., VANN, VS)
- Use terms from widely deployed vocabularies
- Provide licensing metadata (e.g., CC)
- Provide provenance metadata (e.g., PROV)



Maximum marks: 1

4 INFO216 - RDF resources can be

An RDF resource can be

Select one alternative:

- an information resource
- a material phenomenon (including people and artefacts)
- a property
- any of these
- a concept



Maximum marks: 1

5 INFO216 - RDF resource types

An RDF resource

Select one alternative:

- must have exactly one rdf:type
- always has at least one rdf:type
- may or may not have an rdf:type
- always has rdfs:Class as its rdf:type



Maximum marks: 1

6 INFO216 - RDF lists

It is true about an rdf:List (collection) that

Select one alternative:

- New members cannot be added without deleting triples
- It is typically used to represent alternatives
- It is easy to add new members
- Cannot contain the same resource several times



Maximum marks: 1

7 INFO216 - RDFS containers

An RDFS container **CANNOT**

Select one alternative:

- Be an `rdf:List` ✓
- Have duplicate members
- Be an `rdfs:Alt`, `rdfs:Bag` or `rdfs:Seq`
- Be extended without deleting triples

Maximum marks: 1

8 INFO216 - reification

Reification is that

Select one alternative:

- 303 redirection is used to return information about a resource
- A resource represents a material thing or place
- A triple is unpacked into four new triples ✓
- A URI answers HTTP requests and returns more information about a resource

Maximum marks: 1

9 INFO216 - RDF expressiveness

Which of these are supported by the RDF semantics?

Select one alternative:

- Legally owning a gun means owning a licensed weapon
- The object in a hasWorkHomepage triple is a URL
- A Motorbike is a Vehicle
- Everything that is used as a predicate in a triple is an rdf:Property
- The subject in a hasLicensePlate triple is a Vehicle



Maximum marks: 1

10 INFO216 - RDFS Schema

RDF Schema (RDFS) is NOT

Select one alternative:

- Used for defining other vocabularies
- A small RDF vocabulary for more expressive graphs
- The foundation for SKOS, OWL and OWL2
- Used to query RDF graphs



Maximum marks: 1

11 INFO216 - why RDFS classes

What is NOT a reason that RDFS has resource classes?

Select one alternative:

- Classes are important for defining and using other RDFS concepts
- The type (class) of a resource is an important part of its semantics
- We can describe the class formally using RDFS and OWL DL
- Knowing the type (class) of a resource often means we can infer additional information about it (entailment)
- RDFS classes restrict which properties RDF resources can have ✓

Maximum marks: 1

12 INFO216 - RDFS resource classes

What is true about RDFS resource classes?

Select one alternative:

- Classes are templates for instantiating objects
- Provides Information hiding
- The properties of a resource are only visible to its neighbours
- The properties of a resource determines its RDFS class ✓
- Resources have the same RDFS class throughout their lifetime

Maximum marks: 1

13 INFO216 - RDFS expressiveness

Which one can be expressed in plain RDFS?

Select one alternative:

- Everyone who receives medical treatment is a patient ✔
- A class is a negation of another class
- Every ancestor of an ancestor is an ancestor too
- Properties with different URIs are actually the same
- A FootballTeam has 11 players, a VolleyballTeam only 6
- A Republic has exactly one President
- A class is a union (or intersection) of other classes
- Two individuals with different URIs are actually different
- The BirthNumber of a Person is unique
- A StringQuartet has two violins but only one viola and one cello

Maximum marks: 1

14 INFO216 - RDFS axioms

It is NOT true about RDFS axioms that

Select one alternative:

- Predefined in any RDFS graph even when they are not visible
- Based on description logic (DL) ✔
- Triples that are “built into” the RDFS semantics
- An essential part of the semantics of RDFS
- There are 40 axioms and 3 axiom schemas

Maximum marks: 1

15 INFO216 - JSON-LD keywords

Which is NOT a reserved keyword in JSON-LD?

Select one alternative:

- @context: signifies a JSON object that contains the context (or semantic mapping) for the other objects in the same JSON array
- @type: signifies that the JSON object with the @type key has a particular RDF type (or several types)
- @value: signifies that a value is a literal
- @id: signifies that the JSON object with the @id key is identified by a particular URI
- @rule: signifies an entailment rule that applies to the object ✔

Maximum marks: 1

16 INFO216 - JSON-LD forms

JSON-LD forms

Select one alternative:

- Compaction represents the objects compactly by pulling semantics back into the context ✓ ext
- Expansion creates a normalised form for easier parsing by computer
- Compaction removes context by pushing semantics out into the objects
- A graph can only be expressed in a single way
- Regularised and normalised forms are harder to program because there are many rules to follow
- Expansion does not also do regularisation

Maximum marks: 1

17 INFO216 - RDF serialisation 1

Which RDF serialisation is this?

```
[
  {
    "@id": "http://ex.org/DaVinci",
    "@type": [
      "http://ex.org/Person"
    ],
    "http://ex.org/painted": [
      {
        "@id": "http://ex.org/MonaLise"
      }
    ]
  },
  {
    "@id": "http://ex.org/Paris",
    "@type": [
      "http://ex.org/City"
    ]
  },
  {
    "@id": "http://ex.org/Louvre",
    "@type": [
      "http://ex.org/Museum"
    ],
    "http://ex.org/isLocatedIn": [
      {
        "@id": "http://ex.org/Paris"
      }
    ]
  },
  {
    "@id": "http://ex.org/MonaLisa",
    "http://ex.org/isIn": [
      {
        "@id": "http://ex.org/Louvre"
      }
    ]
  }
]
```

Select one alternative:

- RDF/XML
- NQUAD
- N-TRIPLE
- TriG
- JSON-LD
- Turtle (TTL)



Maximum marks: 1

18 INFO216 - RDF serialisation 2

Which RDF serialisation is this most typically?

```
<http://ex.org/Paris> <http://www.w3.org/1999/02/22-rdf-syntax-ns#type> <http://ex.org/City> .  
<http://ex.org/DaVinci> <http://www.w3.org/1999/02/22-rdf-syntax-ns#type>  
<http://ex.org/Person> .  
<http://ex.org/MonaLisa> <http://ex.org/isIn> <http://ex.org/Louvre> .  
<http://ex.org/Louvre> <http://www.w3.org/1999/02/22-rdf-syntax-ns#type>  
<http://ex.org/Museum> .  
<http://ex.org/DaVinci> <http://ex.org/painted> <http://ex.org/MonaLise> .  
<http://ex.org/Louvre> <http://ex.org/isLocatedIn> <http://ex.org/Paris> .
```

Select one alternative:

- TriG
- JSON-LD
- N-TRIPLE
- NQUAD
- RDF/XML



Maximum marks: 1

19 INFO216 - RDF serialisation 3

Which RDF serialisation is this?

```
<?xml version="1.0" encoding="UTF-8"?>
<rdf:RDF
  xmlns:ns 1="http://ex.org/"
  xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
>
  <rdf:Description rdf:about="http://ex.org/DaVinci">
    <ns 1:painting rdf:resource="http://ex.org/MonaLise"/>
    <rdf:type rdf:resource="http://ex.org/Person"/>
  </rdf:Description>
  <rdf:Description rdf:about="http://ex.org/Louvre">
    <rdf:type rdf:resource="http://ex.org/Museum"/>
    <ns 1:isLocatedIn rdf:resource="http://ex.org/Paris"/>
  </rdf:Description>
  <rdf:Description rdf:about="http://ex.org/Paris">
    <rdf:type rdf:resource="http://ex.org/City"/>
  </rdf:Description>
  <rdf:Description rdf:about="http://ex.org/MonaLisa">
    <ns 1:isIn rdf:resource="http://ex.org/Louvre"/>
  </rdf:Description>
</rdf:RDF>
```

Select one alternative:

- N-TRIPLE
- Turtle (TTL)
- NQUAD
- RDF/XML
- TriG
- JSON-LD



Maximum marks: 1

20 INFO216 - RDF serialisation 4

Which RDF serialisation is this?

```
_:N27d77573d5e64e6da9412cb97554e0be {  
  ns1:DaVinci a ns1:Person ;  
  ns1:painter ns1:MonaLise .  
  ns1:MonaLisa ns1:isIn ns1:Louvre .  
  ns1:Louvre a ns1:Museum ;  
  ns1:isLocatedIn ns1:Paris .  
  ns1:Paris a ns1:City .  
}
```

Select one alternative:

- NQUAD
- TriG
- RDF/XML
- JSON-LD
- Turtle (TTL)
- N-TRIPLE



Maximum marks: 1

21 INFO216 - RDF serialisation 5

Which RDF serialisation is this most typically?

```
ns1:DaVinci a ns1:Person ;  
  ns1:paints ns1:MonaLise .  
ns1:MonaLisa ns1:isIn ns1:Louvre .  
ns1:Louvre a ns1:Museum ;  
  ns1:isLocatedIn ns1:Paris .  
ns1:Paris a ns1:City .
```

Select one alternative:

- TriG
- JSON-LD
- N-TRIPLE
- Turtle (TTL)
- NQUAD
- RDF/XML



Maximum marks: 1

22 New Question

Description logic (DL) is

Select one alternative:

- A logic about concepts, individuals and the roles they play
- Less expressive than propositional logic
- More expressive than 1. order predicate calculus
- A semantic vocabulary
- A query language



Maximum marks: 1

i Introduction to part 2: Vocabularies

In this task, you get 33 multiple choice questions. Selecting the correct answer gives +1 point, whereas wrong answers give -1 point. An empty answer gives 0 points.

You should try to finish this task in less than 40 minutes. It counts ca 22% of the exam.

23 INFO216 - which vocabulary

Which vocabulary matches best?

"Describe time information and temporal relations."

Select one alternative:

- DC
- CC
- SKOS
- PROV-O
- BIO
- SIOC
- schema.org
- VS
- DBpedia and Wikidata ontologies
- FOAF
- Microdata
- OWL-Time ✓
- MO
- VANN
- BIBO

Maximum marks: 1

24 INFO216 - which vocabulary

Which vocabulary matches best?

"Describes people, their friends and workplaces."

Select one alternative:

- schema.org
- DBpedia and Wikidata ontologies
- PROV-O
- MO
- FOAF ✓
- Microdata
- BIO
- BIBO
- DC
- VS
- CC
- VANN
- SKOS
- SIOC

Maximum marks: 1

25 INFO216 - which vocabulary

Which vocabulary matches best?

"Used for categorisation and classification in libraries and other information archives etc."

Select one alternative:

- SKOS ✓
- PROV-O
- DC
- BIO
- Microdata
- VANN
- schema.org
- SIOC
- VS
- CC
- DBpedia and Wikidata ontologies
- FOAF
- MO

Maximum marks: 1

26 INFO216 - which vocabulary

Which vocabulary matches best?

"Describes general encyclopedic information."

Select one alternative:

- SKOS
- VANN
- Microdata
- DC
- VS
- DBpedia and Wikidata ontologies
- SIOC
- BIO
- CC
- BIBO
- PROV-O
- MO
- FOAF
- schema.org



Maximum marks: 1

27 INFO216 - which vocabulary

Which vocabulary matches best?

"Describe geolocations."

Select one alternative:

- VS
- DBpedia and Wikidata ontologies
- PROV-O
- GEO
- MO
- FOAF
- SIOC
- BIBO
- BIO
- VANN
- Microdata
- DC
- CC
- SKOS



Maximum marks: 1

28 INFO216 - which vocabulary

Which vocabulary matches best?

"Some cross-over into genealogical information."

Select one alternative:

- MO
- CC
- SIOC
- VS
- VANN
- BIO ✓
- BIBO
- Microdata
- schema.org
- DC
- PROV-O
- SKOS
- FOAF

Maximum marks: 1

29 INFO216 - which vocabulary

Which vocabulary matches best?

"Describe a person's life as a series of interconnected key events."

Select one alternative:

- CC
- PROV-O
- DBpedia and Wikidata ontologies
- Microdata
- SKOS
- MO
- schema.org
- VANN
- SIOC
- BIO
- BIBO
- FOAF
- VS
- DC



Maximum marks: 1

30 INFO216 - which vocabulary

Which vocabulary matches best?

"For annotating descriptions of vocabularies with examples and usage notes."

Select one alternative:

- DC
- BIO
- SIOC
- PROV-O
- FOAF
- VS
- schema.org
- MO
- VANN ✓
- Microdata
- BIBO
- DBpedia and Wikidata ontologies
- SKOS
- CC


Maximum marks: 1

31 INFO216 - which vocabulary

Which vocabulary matches best?

"Marking up information about commercial products and services."

Select one alternative:

- BIBO
- SKOS
- MO
- BIO
- DC
- CC
- VANN
- schema.org 
- VS
- SIOC
- PROV-O
- DBpedia and Wikidata ontologies
- FOAF

Maximum marks: 1

32 INFO216 - which vocabulary

Which vocabulary matches best?

"Describe the status of vocabulary terms on the Web of Data."

Select one alternative:

- Microdata
- FOAF
- MO
- VANN
- PROV-O
- CC
- BIBO
- VS
- SIOC
- BIO
- schema.org
- DBpedia and Wikidata ontologies
- DC
- SKOS



Maximum marks: 1

33 INFO216 - which vocabulary

Which vocabulary matches best?

"Provides terms for finding out more about people and their backgrounds."

Select one alternative:

- BIBO
- PROV-O
- CC
- schema.org
- MO
- SKOS
- SIOC
- VANN
- VS
- Microdata
- BIO
- DC



Maximum marks: 1

34 INFO216 - which vocabulary

Which vocabulary matches best?

"Describe the sources of information and how it has been derived."

Select one alternative:

- SIOC
- BIO
- BIBO
- CC
- VANN
- PROV-O ✓
- Microdata
- SKOS
- DBpedia and Wikidata ontologies
- MO
- schema.org
- FOAF
- VS

Maximum marks: 1

35 INFO216 - which vocabulary

Which vocabulary matches best?

"Describes metadata about electronic and other documents."

Select one alternative:

- SKOS
- schema.org
- PROV-O
- VANN
- VS
- CC
- BIO
- DBpedia and Wikidata ontologies
- Microdata
- MO
- DC
- SIOC
- BIBO
- FOAF



Maximum marks: 1

36 INFO216 - which vocabulary

Which vocabulary matches best?

"Describes metadata about web resources (video, images, web pages...) and physical resources (books, CDs, artworks...)."

Select one alternative:

- MO
- Microdata
- FOAF
- VS
- OWL-Time
- SIOC
- DC
- schema.org
- VANN
- CC
- BIO




Maximum marks: 1

37 INFO216 - which vocabulary

Which vocabulary matches best?

"Describe the temporal content of Web pages and the temporal properties of Web services."

Select one alternative:

- VS
- BIBO
- PROV-O
- schema.org
- DBpedia and Wikidata ontologies
- SKOS
- DC
- SIOC
- FOAF
- CC
- MO
- VANN
- OWL-Time 
- Microdata
- BIO

Maximum marks: 1

38 INFO216 - which vocabulary

Which vocabulary matches best?

"Backed by major payers such as Google, Yahoo and Yandex."

Select one alternative:

- schema.org
- DC
- VS
- VANN
- CC
- DBpedia and Wikidata ontologies
- BIBO
- MO
- Microdata
- SIOC
- OWL-Time
- FOAF
- PROV-O
- BIO
- SKOS



Maximum marks: 1

39 INFO216 - which vocabulary

Which vocabulary matches best?

"Can represent licensing permissions, obligations and restrictions."

Select one alternative:

- BIBO
- FOAF
- Microdata
- VS
- OWL-Time
- BIO
- VANN
- CC ✓
- DBpedia and Wikidata ontologies
- PROV-O
- SKOS
- SIOC
- MO
- schema.org
- DC

Maximum marks: 1

40 INFO216 - which vocabulary

Which vocabulary matches best?

"Annotation format for inserting semantic data into HTML documents."

Select one alternative:

- SIOC
- schema.org
- CC
- PROV-O
- MO
- FOAF
- BIBO
- VANN
- SKOS
- BIO
- Microdata
- DBpedia and Wikidata ontologies
- VS
- DC
- OWL-Time



Maximum marks: 1

41 INFO216 - which vocabulary

Which vocabulary matches best?

"Describe the information that online community sites (weblogs, message boards, wikis...) have about their structure and contents."

Select one alternative:

- BIO
- MO
- DBpedia and Wikidata ontologies
- PROV-O
- Microdata
- SIOC ✓
- SKOS
- FOAF
- VANN
- DC
- VS
- OWL-Time
- schema.org
- CC
- BIBO

Maximum marks: 1

42 INFO216 - which vocabulary

Which vocabulary matches best?

"Can represent how and by whom information has been created."

Select one alternative:

- VANN
- SIOC
- MO
- VS
- CC
- OWL-Time
- DBpedia and Wikidata ontologies
- BIO
- PROV-O ✓
- FOAF
- BIBO
- schema.org
- Microdata
- SKOS

Maximum marks: 1

43 INFO216 - which vocabulary

Which vocabulary matches best?

"Provides terms for describing products, services and offers."

Select one alternative:

- BIBO
- schema.org ✓
- SIOC
- BIO
- DC
- DBpedia and Wikidata ontologies
- CC
- PROV-O
- Microdata
- SKOS
- VS
- OWL-Time
- MO
- VANN
- FOAF

Maximum marks: 1

44 INFO216 - which vocabulary

Which vocabulary matches best?

"Provides terms for describing product ratings."

Select one alternative:

- Microdata
- schema.org
- SIOC
- DC
- VS
- PROV-O
- BIBO
- FOAF
- VANN
- DBpedia and Wikidata ontologies
- OWL-Time
- CC
- MO
- BIO
- SKOS



Maximum marks: 1

45 INFO216 - which vocabulary

Which vocabulary matches best?

"Providing mappings between concept schemes."

Select one alternative:

- OWL-Time
- VANN
- VS
- DBpedia and Wikidata ontologies
- BIO
- PROV-O
- DC
- FOAF
- SIOC
- CC
- MO
- SKOS ✓
- Microdata
- schema.org
- BIBO

Maximum marks: 1

46 INFO216 - which vocabulary

Which vocabulary matches best?

"Letting webmasters markup their pages in ways recognized by search providers such as Google, Microsoft, Yahoo and Yandex."

Select one alternative:

- schema.org ✓
- SKOS
- CC
- FOAF
- SIOC
- DC
- PROV-O
- MO
- BIO
- VANN
- BIBO
- VS
- DBpedia and Wikidata ontologies
- OWL-Time

Maximum marks: 1

47 INFO216 - which vocabulary

Which vocabulary matches best?

"Assess their quality, reliability and trustworthiness of RDF datasets."

Select one alternative:

- SKOS
- BIO
- MO
- SIOC
- BIBO
- OWL-Time
- VS
- PROV-O ✓
- VANN
- DC
- schema.org
- DBpedia and Wikidata ontologies
- CC
- FOAF
- Microdata


Maximum marks: 1

48 INFO216 - which vocabulary

Which vocabulary matches best?

"Describe copyright licenses in RDF."

Select one alternative:

- PROV-O
- VS
- FOAF
- MO
- SIOC
- Microdata
- DC
- DBpedia and Wikidata ontologies
- OWL-Time
- BIO
- VANN
- SKOS
- CC 
- schema.org
- BIBO

Maximum marks: 1

49 INFO216 - which vocabulary

Which vocabulary matches best?

"Describe bibliographic entities on the semantic Web in RDF."

Select one alternative:

- schema.org
- VANN
- FOAF
- DBpedia and Wikidata ontologies
- BIBO ✓
- DC
- CC
- BIO
- PROV-O
- OWL-Time
- SKOS
- MO
- SIOC
- Microdata
- VS

Maximum marks: 1

50 INFO216 - which vocabulary

Which vocabulary matches best?

"Can be used as a citation ontology, as a document classification ontology, or as a way to describe documents in RDF."

Select one alternative:

- Microdata
- SIOC
- schema.org
- OWL-Time
- DC
- BIO
- CC
- MO
- PROV-O
- BIBO
- VANN
- SKOS
- VS
- DBpedia and Wikidata ontologies



Maximum marks: 1

51 INFO216 - which vocabulary

Which vocabulary matches best?

"Provides main concepts and properties for describing metadata about music (artists, albums, tracks...)."

Select one alternative:

- BIO
- FOAF
- BIBO
- OWL-Time
- VANN
- PROV-O
- SKOS
- DC
- SIOC
- CC
- schema.org
- VS
- Microdata
- MO



Maximum marks: 1

52 INFO216 - which vocabulary

Which vocabulary matches best?

"For marking up (primarily commercial) web sites."

Select one alternative:

- BIBO
- VANN
- MO
- FOAF
- PROV-O
- SKOS
- CC
- SIOC
- DBpedia and Wikidata ontologies
- VS
- OWL-Time
- schema.org
- BIO
- DC



Maximum marks: 1

53 INFO216 - which vocabulary

Which vocabulary matches best?

"Making classification schemes, subject heading lists, taxonomies and other fixed vocabularies."

Select one alternative:

- DC
- PROV-O
- VANN
- SIOC
- MO
- BIBO
- CC
- DBpedia and Wikidata ontologies
- SKOS
- Microdata
- BIO
- OWL-Time
- FOAF
- VS



Maximum marks: 1

54 INFO216 - which vocabulary

Which vocabulary matches best?

"Used to represent, exchange and interrelate library catalogues."

Select one alternative:

- schema.org
- CC
- VS
- PROV-O
- SKOS ✓
- SIOC
- DBpedia and Wikidata ontologies
- VANN
- OWL-Time
- MO
- FOAF
- Microdata
- BIO

Maximum marks: 1

55 INFO216 - which vocabulary

Which vocabulary matches best?

"Letting search providers improve the display of search results, enabling new tools and applications."

Select one alternative:

- SKOS
- DBpedia and Wikidata ontologies
- schema.org ✓
- OWL-Time
- BIO
- BIBO
- MO
- VS
- SIOC
- CC
- Microdata
- VANN
- PROV-O
- FOAF
- DC

Maximum marks: 1

i Introduction to part 3: Knowledge graphs

In this task, you get 15 multiple choice questions. Selecting the correct answer gives +1 point, whereas wrong answers give -1 point. An empty answer gives 0 points. You should try to finish this task in less than 18 minutes. It counts approximately 10% of the exam.

56 INFO216 - which KG / KB?

Which open knowledge graph (or knowledge base) matches best?

"Contains information about more than 90 billion things."

Select one alternative:

- GeoNames
- DBpedia
- Google's KG
- Amazon's KG
- WordNet
- EventKG 3.0
- GDELT
- Wikidata ✓
- BabelNet
- Freebase

Maximum marks: 0

57 INFO216 - which KG / KB?

Which open knowledge graph (or knowledge base) matches best?

"Was used to seed Wikidata and Google's knowledge graph."

Select one alternative:

- DBpedia
- EventKG 3.0
- Freebase
- Google's KG
- WordNet
- Wikidata
- GeoNames
- GDELT
- BabelNet
- Amazon's KG



Maximum marks: 1

58 INFO216 - which KG / KB?

Which open knowledge graph (or knowledge base) matches best?

"Describes 800 M word senses in more than 280 languages."

Select one alternative:

- Wikidata
- GDELT
- WordNet
- Freebase
- Amazon's KG
- DBpedia
- Google's KG
- BabelNet
- GeoNames
- EventKG 3.0




Maximum marks: 1

59 INFO216 - which KG / KB?

Which open knowledge graph (or knowledge base) matches best?

"Provides structured information to Wikipedia."

Select one alternative:

- WordNet
- Amazon's KG
- GDELT
- Wikidata 
- EventKG 3.0
- BabelNet
- DBpedia
- Google's KG
- GeoNames
- Freebase

Maximum marks: 1

60 INFO216 - which KG / KB?

Which open knowledge graph (or knowledge base) matches best?

"Updates are available through spreadsheets every 15 minutes."

Select one alternative:

GeoNames

WordNet

GDELT



Freebase

Wikidata

Amazon's KG

EventKG 3.0

Google's KG

DBpedia

BabelNet

Maximum marks: 1

61 INFO216 - which KG / KB?

Which open knowledge graph (or knowledge base) matches best?

"Gets its data from Wikipedia, Wikidata and other Wikimedia projects."

Select one alternative:

- Wikidata
- GeoNames
- WordNet
- GDELT
- DBpedia
- BabelNet
- Freebase
- Amazon's KG
- Google's KG



Maximum marks: 1

62 INFO216 - which KG / KB?

Which open knowledge graph (or knowledge base) matches best?

"A central aim is to enrich online shopping experiences."

Select one alternative:

- GeoNames
- Wikidata
- WordNet
- BabelNet
- Freebase
- Amazon's KG
- EventKG 3.0
- GDELT
- DBpedia
- Google's KG



Maximum marks: 1

63 INFO216 - which KG / KB?

Which open knowledge graph (or knowledge base) matches best?

"Uses skos:Concepts to link synonyms from different languages."

Select one alternative:

- Google's KG
- GDELT
- Wikidata
- EventKG 3.0
- Amazon's KG
- DBpedia
- GeoNames
- WordNet
- Freebase
- BabelNet



Maximum marks: 1

64 INFO216 - which KG / KB?

Which open knowledge graph (or knowledge base) matches best?

"Acquired by Google in 2010."

Select one alternative:

- Wikidata
- DBpedia
- Freebase
- EventKG 3.0
- GeoNames
- WordNet
- Google's KG
- GDELT
- Amazon's KG
- BabelNet



Maximum marks: 1

65 INFO216 - which KG / KB?

Which open knowledge graph (or knowledge base) matches best?

"Contains around 58 000 Norwegian place names."

Select one alternative:

- Freebase
- DBpedia
- Amazon's KG
- EventKG 3.0
- GDELT
- WordNet
- BabelNet
- Google's KG
- Wikidata
- GeoNames



Maximum marks: 1

66 INFO216 - which KG / KB?

Which open knowledge graph (or knowledge base) matches best?

"Organises English words by relations such as hypernym, hyponymh, etc."

Select one alternative:

- Freebase
- GeoNames
- GDELT
- WordNet
- EventKG 3.0
- Wikidata
- DBpedia
- BabelNet
- Google's KG
- Amazon's KG



Maximum marks: 1

67 INFO216 - which KG / KB?

Which open knowledge graph (or knowledge base) matches best?

"Intended as an authoritative KG of all products in the world."

Select one alternative:

- Freebase
- Wikidata
- Google's KG
- EventKG 3.0
- WordNet
- DBpedia
- Amazon's KG
- GDELT
- GeoNames
- BabelNet



Maximum marks: 1

68 INFO216 - which KG / KB?

Which open knowledge graph (or knowledge base) matches best?

"Enrich general internet search results."

Select one alternative:

- BabelNet
- GeoNames
- DBpedia
- Google's KG
- WordNet
- Freebase
- Wikidata
- GDELT
- Amazon's KG
- EventKG 3.0



Maximum marks: 1

69 INFO216 - which KG / KB?

Which open knowledge graph (or knowledge base) matches best?

"Describes around 1.3 million events."

Select one alternative:

- GDELT
- Wikidata
- Amazon's KG
- DBpedia
- WordNet
- Google's KG
- GeoNames
- Freebase
- BabelNet
- EventKG 3.0



Maximum marks: 1

70 INFO216 - which KG / KB?

Which open knowledge graph (or knowledge base) matches best?

"Is claimed to contain more than 500 000 000 000 triples."

Select one alternative:

EventKG 3.0

Freebase

BabelNet

Google's KG 

DBpedia

WordNet

GDELT

Wikidata

Amazon's KG

GeoNames

Maximum marks: 1

i Introduction to part 4: OWL

In this task,

- First, you get 6 multiple choice questions about OWL properties. Each question may have one or more correct answer alternatives. Each correct answer gives +0.5 point, whereas each wrong answer gives -0.5 point. An empty answer gives 0 points.
- Then, you are presented with a small domain. You are asked to write 12 OWL expressions about the domain in Turtle. Each OWL expression gives up to +3 points. There are no negative points given for the OWL expressions.

You should try to answer this part in around 45 minutes. It counts around 27% of the exam.

71 INFO216 - hasNeighbour property

The hasNeighbour object property between two people is
Select one or more alternatives:

Transitive

Reflexive

Inverse functional

Functional

Asymmetric

Symmetric ✓

Irreflexive ✓

Maximum marks: 1

72 INFO216 - hasLocation property

The hasLocation object property is
Select one or more alternatives:

Reflexive

Inverse functional

Transitive

Symmetric

Irreflexive ✓

Asymmetric ✓

Maximum marks: 1

73 INFO216 - connectedByRoad property (one-way streets)

The `isConnectedByRoad` object property between two locations (there can be one-way streets) is

Select one or more alternatives:

Symmetric

Functional

Inverse functional

Asymmetric

Transitive



Irreflexive



Reflexive

Maximum marks: 1

74 INFO216 - hasMother property

The hasMother object property between two persons is
Select one or more alternatives:

- Irreflexive ✓
- Transitive
- Asymmetric ✓
- Symmetric
- Inverse functional
- Functional ✓
- Reflexive

Maximum marks: 1.5

75 INFO216 - hasSibling property

The hasSibling object property between two people is
Select one or more alternatives:

- Transitive ✓
- Irreflexive ✓
- Reflexive
- Inverse functional
- Asymmetric
- Symmetric ✓
- Functional

Maximum marks: 1.5

76 INFO216 - hasFlightTo property

The hasFlightTo object property between two airports is
Select one or more alternatives:

- Irreflexive ✓
- Functional
- Asymmetric
- Reflexive
- Inverse functional
- Transitive

Maximum marks: 0.5

i INFO216 - problem domain for writing OWL in Turtle notation

Assume the following owl:NamedClasses are defined as shown in the figure:

:Country, :City, :CapitalCity, :Region, :CapitalRegion, :Division

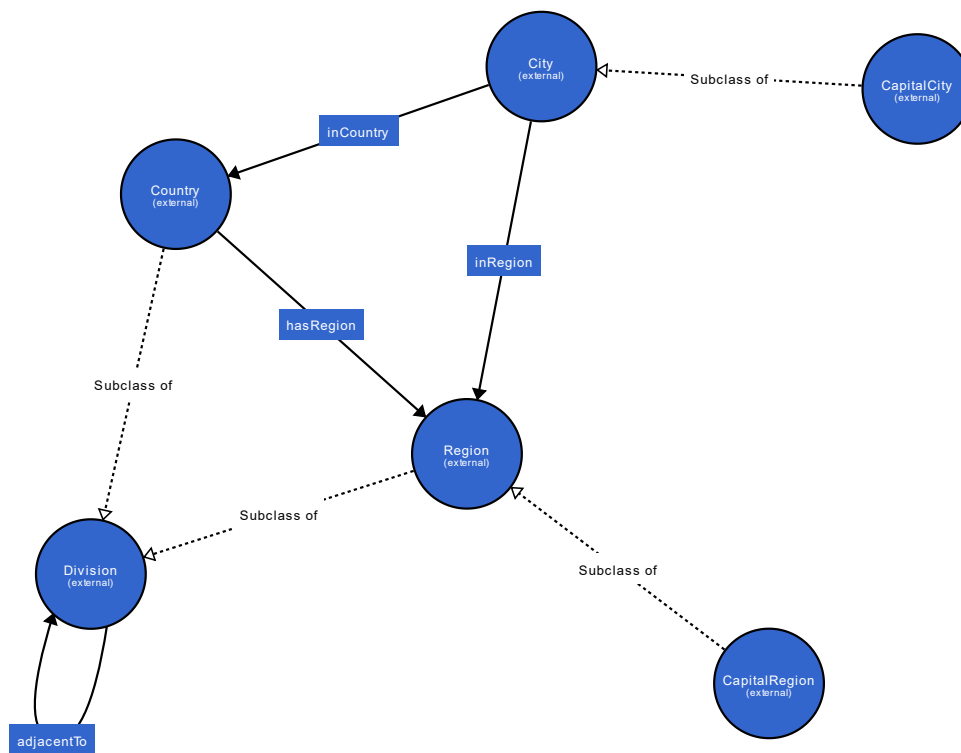
Assume the following OWL:ObjectProperties are defined as shown in the figure:

:inCountry (from :City to :Country)

:hasRegion (from :Country to :Region)

:inRegion (from :Region to :City)

:adjacentTo (from :Division to :Division)



77 INFO216 - OWL in TTL: country has regions

Write this in Turtle using OWL terms

(assuming prefixes such as rdfs: and owl: are defined):

"A country has one or more regions."

Write your Turtle expression here

Maximum marks: 3

78 INFO216 - OWL in TTL: city in country

Write this in Turtle using OWL terms

(assuming prefixes like rdfs: and owl: are defined):

"A city is located in exactly one country."

Write your Turtle expression here

Maximum marks: 3

79 INFO216 - OWL in TTL: capital is city

Write this in Turtle using OWL terms

(assuming prefixes like rdfs: and owl: are defined):

"A capital city is a city."

Write your Turtle expression here

Maximum marks: 3

80 INFO216 - OWL in TTL: country has capital

Write this in Turtle using OWL terms

(assuming prefixes like rdfs: and owl: are defined):

"A country has only one capital."

Write your Turtle expression here

Maximum marks: 3

81 INFO216 - OWL in TTL: division is country or region

Write this in Turtle using OWL terms

(assuming prefixes such as rdfs: and owl: are defined):

"A division is either a country or a region."

Write your Turtle expression here

Maximum marks: 3

82 INFO216 - OWL in TTL: division adjacency 1

Write this in Turtle using OWL terms

(assuming prefixes such as rdfs: and owl: are defined):

"Anything that is adjacent to something is a division."

Write your Turtle expression here

Maximum marks: 3

83 INFO216 - OWL in TTL: division adjacency 2

Write this in Turtle using OWL terms

(assuming prefixes such as rdfs: and owl: are defined):

"A division cannot be adjacent to itself."

Write your Turtle expression here

Maximum marks: 3

84 INFO216 - OWL in TTL: city in region 1

Write this in Turtle using OWL terms

(assuming prefixes such as rdfs: and owl: are defined):

"A city is located in at most one region."

Write your Turtle expression here

Maximum marks: 3

85 INFO216 - OWL in TTL: capital region

Write this in Turtle using OWL terms

(assuming prefixes like rdfs: and owl: are defined):

"A capital region is a region that has a capital city."

Write your Turtle expression here

Maximum marks: 3

86 INFO216 - OWL in TTL: city in region 2

Write this in Turtle using OWL terms

(assuming prefixes such as rdfs: and owl: are defined):

"If a city is in a region, it must be in the country of that region."

Write your Turtle expression here

Maximum marks: 3

87 INFO216 - OWL in TTL: island state

Write this in Turtle using OWL terms

(assuming prefixes like rdfs: and owl: are defined):

"An island state is a country that is next to no (other) country."

Fill in your answer here

Maximum marks: 3

88 INFO216 - OWL in TTL: city state

Write this in Turtle using OWL terms

(assuming prefixes such as rdfs: and owl: are defined):

"A country with only one city and at most one region is a city state."

Fill in your answer here

Maximum marks: 3

i Introduction to part 5: SPARQL

In this task:

- First, you get 5 multiple choice questions about SPARQL. Each question has one correct answer. Each correct answer gives +1 point, whereas wrong answers give -1 point. An empty answer gives 0 points.
- Then, you are presented with a small dataset (*note that the terms used here are different from the ones in the OWL tasks.*) You are asked to write 7 updates or queries related to the dataset in SPARQL. Some of the SPARQL statements give up to +6 points. There are no negative points given for the SPARQL statements.

You should try to answer this part in around 45 minutes. It counts approximately 27% of the exam.

89 INFO216 - SPARQL ASK returns

A SPARQL ASK query returns

Select one alternative:

- A graph
- A table
- A boolean (True or False)
- It is not a SPARQL query
- A tree



Maximum marks: 1

90 INFO216 - SPARQL CONSTRUCT returns

A SPARQL CONSTRUCT query returns

Select one alternative:

- A boolean (True or False)
- A tree
- A table
- A graph
- It is not a SPARQL query



Maximum marks: 1

91 INFO216 - SPARQL DESCRIBE returns

A SPARQL DESCRIBE query returns

Select one alternative:

- A table
- It is not a SPARQL query
- A tree
- A boolean (True or False)
- A graph



Maximum marks: 1

92 INFO216 - SPARQL INSPECT returns

A SPARQL INSPECT query returns

Select one alternative:

- A tree
- A graph
- A boolean (True or False)
- A table
- It is not a SPARQL query



Maximum marks: 1

93 INFO216 - SPARQL SELECT returns

A SPARQL SELECT query returns

Select one alternative:

- It is not a SPARQL query
- A tree
- A table
- A boolean (True or False)
- A graph



Maximum marks: 1

94 INFO216 - SPARQL: add region triples

Write a SPARQL Update that adds the triples written below in Turtle to a triple store:

@prefix : <http://ex.org/> .

:Norway :hasRegion :OsloRegion, :Rogaland, :Trondelag, :Vestland, :Viken .

:OsloRegion :hasCity :Oslo .

Fill in your answer here

Maximum marks: 5

95 INFO216 - SPARQL: count city triples

How many triples (without axioms and entailments) is written in Turtle here:

```
:Norway :citiesByPopulation ( :Oslo :Bergen :Trondheim :Stavanger :Drammen ) .
```

Number of triples: (11).

Maximum marks: 4

96 INFO216 - SPARQL: list cities

Assume these triples have been added to your triple store:

```
:Norway :citiesByPopulation ( :Oslo :Bergen :Trondheim :Stavanger :Drammen ) .
```

Complete this single-line SPARQL query so that it returns these 5 Norwegian cities:

```
PREFIX : <http://ex.org/>
```

```
SELECT ?city WHERE {
```

```
  :Norway ( :citiesByPopulation  (/ rdf:rest * /
```

```
  rdf:first) ) ?city .
```

```
}
```

Expected result (the order may be different):

?city
:Oslo
:Bergen
:Trondheim
:Stavanger
:Drammen

Maximum marks: 6

97 INFO216 - SPARQL: add city triples

Write a SPARQL Update statement that uses the :citiesByPopulation list to add five corresponding unordered :hasCity triples.

(The statement must be general so that it also works on other lists of cities and other countries.)

Fill in your answer here

Expected result written in Turtle:

:Norway :hasCity :Oslo, :Bergen, :Trondheim, :Stavanger, :Drammen .

Maximum marks: 6

98 **INFO216 - SPARQL: cities per region**

Assume the triple store has been extended with more triples (still written in Turtle):

```

:Norway :hasCity :Os, :Voss, :Sandnes, :Fredrikstad, :Sarpsborg .
:OsloRegion :regionalCity :Oslo .
:Vestland :regionalCity :Bergen, :Os, :Voss .
:Trondelag :regionalCity :Trondheim .
:Rogaland :regionalCity :Stavanger, :Sandnes .
:Viken :regionalCity :Drammen, :Fredrikstad, :Sarpsborg .
:Oslo :hasPopulation 580000 .
:Bergen :hasPopulation 213585 .
:Os :hasPopulation 14046 .
:Voss :hasPopulation 6043 .
:Trondheim :hasPopulation 147139 .
:Stavanger :hasPopulation 121610 .
:Drammen :hasPopulation 90722 .
:Fredrikstad :hasPopulation 72760 .
:Sandnes :hasPopulation 63032 .
:Sarpsborg :hasPopulation 52159 .

```

Write a SPARQL query that counts the number of cities in each region in Norway.

Fill in your answer here

Expected result:

?region	?cityCount
:OsloRegion	1
:Viken	3
:Vestland	3
:Trondelag	1
:Rogaland	2

Maximum marks: 5

99 INFO216 - SPARQL: ordered cities per region

Continue with the same triple store. Extend the previous SPARQL query so that it lists the city population in each region in Norway *in descending order*.

Fill in your answer here

Expected result:

?region	?cityCount
:Viken	3
:Vestland	3
:Rogaland	2
:OsloRegion	1
:Trondelag	1

Maximum marks: 5

100 INFO216 - SPARQL syntax

SPARQL syntax most resembles

Select one alternative:

- Manchester OWL
- RDF/XML
- Turtle (TTL)
- JSON-LD



Maximum marks: 4