



**NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY**

FACULTY OF COMPUTING AND INFORMATICS

DEPARTMENT OF INFORMATICS, JOURNALISM AND MEDIA TECHNOLOGY

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| QUALIFICATION : B. INFORMATICS HONOURS (WEB INFOR) | |
| QUALIFICATION CODE: 08BIHW | COURSE LEVEL: NQF LEVEL 8 |
| COURSE: WEB APPLICATION DEVELOPMENT & TESTING | COURSE CODE: WED811S |
| DATE: JUNE 2022 | SESSION: 1 |
| DURATION: 2 Hours | MARKS: 50 |

| FIRST OPPORTUNITY EXAMINATION QUESTION PAPER | |
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| EXAMINER(S): | Mr E. MBAEVA |
| MODERATOR (S): | Ms A. SHIPEPE |

**THIS EXAMINATION PAPER CONSISTS OF 4 PAGES
(INCLUDING THIS FRONT PAGE)**

Instructions for the students

- 1. Answer ALL the questions.**
- 2. Write clearly and neatly.**
- 3. Number the answers clearly.**

SECTION A: Short Answer Questions [8 Marks]

- Answer all the questions in the provided booklet.
- The section consists of 8 questions.

Select one option from the list of possible answers to the questions below.

1. The following defines a bottom - up approach in ontology development, select one: (1 Mark)
 - a. Check if you can refine and extend existing sources.
 - b. You start with creating classes for the general concepts.
 - c. Check characteristics to consider first.
 - d. Define the most specific classes first.
 - e. None of the above.
2. A value type facet describes what types of values that can fill in the slot. (1 Mark)
 - a. True
 - b. False
3. In the wine class, flavour is extrinsic and the wine name should be intrinsic. (1 Mark)
 - a. True
 - b. False
4. Slots equals properties that defines the class. (1 Mark)
 - a. True
 - b. False
5. The UCD design phase combines both the conceptualization and the development phases. (1 Mark)
 - a. True
 - b. False
6. The following are the core activities of requirements engineering, select one option: (1 Mark)
 - a. Validation and negotiation
 - b. Communication skills
 - c. Empathy
 - d. Analytic thinking
7. Not a RDF exchange format (1 Mark)
 - a. N3
 - b. N-Triples
 - c. OWL
 - d. RDF/XML
8. What are the benefits of the Model-View-Controller architectural pattern? (1 Mark)

SECTION B: Descriptive Questions [28 Marks]

- *Answer all the questions in the provided booklet.*
- *The section consists of 8 questions.*

State whether the following statements are true or false. Motivate your answer briefly.

1. Define the purpose and implementation of the following interfaces: (4 Marks)
 - a. `HttpServletRequest`
 - b. `HttpServletResponse`
2. List 3 data types with their prefix in protégé (3 Marks)
3. State why servlets have to redirect request to other resources and indicate the method that is fit for that purpose. (3 Marks)
4. Explain the purpose and significance of the `setContentType` method. (2 Marks)
5. Mention the key components of JSP. (4 Marks)
6. What role does SPARQL play in semantic web application development? (2 Marks)
7. Define usability testing and its categories. (6 Marks)
8. Suppose that Steven is a Tutor for the Course Data Structures at NUST, he lives in Rocky Crest. Model this scenario in an RDF graph. (4 Marks)

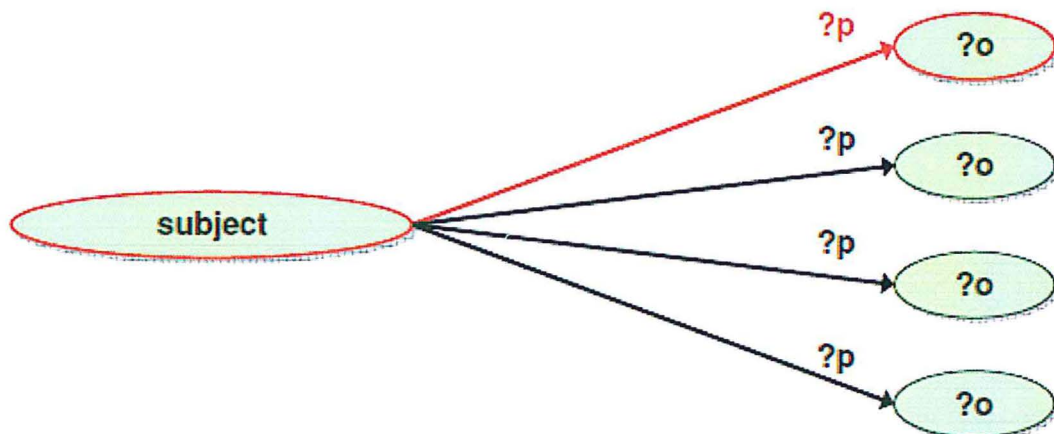
SECTION C: Practical Questions [14 Marks]

1. Study the following Turtle specification and create an RDF graph representation model. (6 Marks)

```
@prefix rdf: <http://www.w3.org/1999/02/22-rdf-syntax-ns#> .
@prefix foaf: <http://xmlns.com/foaf/spec/#> .
@prefix bb: <http://data.bibbase.org/ontology/> .

|<http://data.bibbase.org/author/renee-j-miller/>
  rdf:type foaf:person .
  foaf:name "Renée J. Miller"@en ;
  foaf:based_near <http://dbpedia.org/resource/Toronto>
```

2. Given the following triples snapshot, define what it is and create a Jena code block that implements the model. (6 Marks)



3. Explain the purpose of XML in the Layered Architecture of the semantic Web. (2 Marks)

***** End of the Paper *****