The use of any auxiliary material is strictly forbidden. Answer each question.

1. Describe briefly the basic idea behind SKOS (Simple Knowledge Organization System) and explain its most important modelling concepts or primitives. When to use OWL or RDFS instead of SKOS?

2. Explain the following terms in the course context:
    a) illogical reasoning
    b) OWL QL
    c) datatype
    d) blank RDF node identifier
    e) five star linked data
    f) Knowledge Representation System

3. White short answers to the following:
    a) Define a simple OWL ontology (e.g. using a pseudo code variant of Turtle or a graphical nodes-and-arcs diagram) that captures the following family relationships (logical consequence in parentheses): *John is Mary's spouse (and vice versa). John has a child Judy (and hence John is a Parent and Judy is a Person). Parents are Persons (and hence John is a Person).*

        To simplify the task, you can assume that suitable namespace prefixes (owl, rdf, etc.) have been declared. Further, don't worry about the exact names of the OWL terms; the point is to explain how to declare the ontology.

    b) Write a SPARQL query that returns all parents of the above model. What kind of a SPARQL query processor is capable of completing this request?

4. Give an example of a simple and sensible RDF query that cannot be resolved with SPARQL. (Tip: Consider e.g. SQL queries with arithmetic operators.) Describe briefly a feasible component-based implementation strategy to implement the query either in Java or in Python.