Ain Shams University
Faculty of Computer and Information Sciences
Decision Support Systems
Fourth Year **Final Term**
Time: Three hours **May 2018**

Question Five: {16 marks}

Consider the following tabular data (bibliography) and answer the following questions.
(Convert 2 records only).

Books					
Id	Title	Author	Publisher	Category	ISBN
1	Introduction to computers	Jim Hendler	springer	Computer Sciences	978-0-12-385965-5
2	Essential bioinformatics	JIN XIONG	springer	Bioinformatics	978-0-470-02001-2
3	Pattern discovery in bioinformatics	David L. Olson	springer	Data Mining	978-3-540-76916-3
4	Advanced databases	Borko Furht	springer	Databse	978-1-4419-6523-3
5	Algorithms of bioinformatics	Frédéric Dardel	springer	Bioinformatics	978-0-470-12321-2

a. Convert the tabular data into XML formats where the "id", "title", "author", "publisher", "category" and "ISBN" are attributes for the element book and the root element is library.

```
<?xml version="1.0" encoding="UTF-8"?>
<library>
  <book>
<ID> 1 </ID>
    <title>introduction to computers</title>
    <author>Jim Hendler</author>
    <publisher>springer</publisher>
    <category>Semantic Web</category>
    <ISBN>978-0-12-385965-5</ISBN>
  </book>
  <book>
<ID> 2 </ID>
    <title>Essential Bioinformatics</title>
    <author>JIN XIONG</author>
    <publisher>springer</publisher>
    <category> Bioinformatics</category>
    <ISBN>978-0-470-02001-2</ISBN>
  </book>
</library>
```

b. Convert the tabular data into the RDF representation using the following:
i. The global URI for the rdf namespace is http://www.w3.org/1999/02/22-rdf-syntax-ns#.
ii. "bib" stands for http://www.amazon.com/books-used-books-textbooks.

```
<rdf:RDF
       xmlns:bib="http://www.amazon.com/textbooks#"
       xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntaxns#"

    <bib:Book rdf:about="http://www.amazon.com/textbooks#Book1">
          <bib:id>1</bib:id>
          <bib:title>introduction to computers</bib:title>
          <bib:author> Jim Hendler</bib:author>
          <bib:publisher> springer</bib:publisher>
          <bib:category> Semantic Web</bib:category>
          <bib:ISBN>978-0-12-385965-5</bib:ISBN>
```

```
</bib:Book>

<bib:Book rdf:about="http://www.amazon.com/textbooks#Book2">
        <bib:id>2</bib:id>
        <bib:title>Essential Bioinformatics</bib:title >
        <bib:author> JIN XIONG</bib:author>
        <bib:publisher> springer</bib:publisher>
        <bib:category> Bioinformatics </bib:category>
        <bib:ISBN>978-0-470-02001-2</bib:ISBN>
</bib:Book>


</rdf:RDF>
```

Question six: {16 marks}

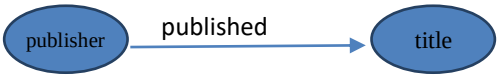
By using the tabular data in the question 3 answer the following:

a. By using the graph representation, represent the relation between

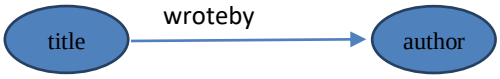
i. The publisher and the title of the book (published)
ii. The title and the author of the book (wroteby)
iii. Merge the two graphs in one graph.

a. By using the graph representation, represent the relation between

i. The publisher and the title of the book (published)



ii. The title and the author of the book (wroteby)



iii. Merge the two graphs in one graph.

b. Write SPARQL query to determine the following

i. The books which published by the springer.
ii. The publisher of the book "Advanced databases"
iii. Write the answer of the following query:

SELECT ?who
WHERE {:springer :published ?what .
?what :wroteby ?who .}

i. The books which published by the springer.

Representation:

SELECT?what
WHERE {:Springer :Published **?what.**}

ii. The publisher of the book "Pattern Recognition"

SELECT?who
WHERE{: Pattern Recognition:PublishedBy **?who.**}

iii. Write the answer of the following query:

SELECT?who
WHERE {:springer :published**?what**
?what:WroteBy**?who.**}

RESULT

Author	Title
Jim Hendler	Introduction to computers
JIN XIONG	Essential bioinformatics
David L. Olson	Pattern recognition
Borko Furht	Advanced databases
Frédéric Dardel	Algorithms of bioinformatics