

Suggested Solution for Assignment 2

Question 1 (There can be more than one answer. This is one of the answers only):

DTD:

```
<!ELEMENT books (book+)>
<!ELEMENT book (isbn,title,author+,publisher,year)>
<!ELEMENT author (#CDATA)>
<!ELEMENT isbn (#CDATA)>
<!ELEMENT title (#CDATA)>
<!ELEMENT publisher (#CDATA)>
<!ELEMENT year (#CDATA)>
```

XML:

```
<?xml version="1.0"?>
<!DOCTYPE books SYSTEM "books.dtd">
<books>
  <book>
    <isbn>0120884070</isbn>
    <title>Data Mining: Practical Machine Learning Tools and Techniques</title>
    <author>Ian H. Witten</author>
    <author>Eibe Frank</author>
    <publisher>Morgan Kaufmann</publisher>
    <year>2005</year>
  </book>
  <book>
    <isbn>0471462616</isbn>
    <title>Data Mining with SQL Server 2005</title>
    <author>ZhaoHui Tang</author>
    <author>Jamie MacLennan</author>
    <publisher>Wiley</publisher>
    <year>2005</year>
  </book>
</books>
```

JSON:

```
{
  "books":[
    {
      "isbn":0120884070,
      "title":"Data Mining: Practical Machine Learning Tools and Techniques",
```

```
"authors":["Ian H. Witten","Eibe Frank"],
"publisher":"Morgan Kaufmann",
"year":2005
},
{
"isbn":82208142,
"title":"Data Mining with SQL Server 2005",
"authors":["ZhaoHui Tang","Jamie MacLennan"],
"publisher":"Wiley"
}
]
}
```

Question 2:

Each example is 2.5 marks. The examples must be specific and concrete. For example:

Bad: Information sharing is not good because it may violate intellectual property rights.
(Only give 0.5%)

Good: Technically, we can upload our assignments/projects on our weblog. This does not violate any regulation. However, this is obviously not good if we upload them before their deadlines because other classmates who have not yet finished their assignments/projects may view our weblogs and copy our works directly. (Give full marks – 2.5%)

Question 3:

Score full mark if the student can describe the following concepts:

All e-commerce is part of E-Business. Not all E-Business is E-Commerce. (1%)

E-Commerce is the transaction process which involved with the electronic process using Internet technologies. (2%)

E-Business not only involved with transaction, but also many other business activities, such as resources management, technologies management and logistics management. (2%)

For reference:

1. For example, setting up an online book store (e.g. Amazon.com), is both an E-Commerce and E-Business. Creating a search engine for free (e.g. Google.com) is an E-Business.
2. Just think about Marketing and Sales. Sales is a part of Marketing. Marketing includes other activities, such as Advertising which is not included in Sales.)

Question 4:

Without decomposition: (2.5%)

If we send a large message via Internet and the message is lost during transmission, we need to send the whole message again. This will consume lots of bandwidth in the network, causing traffic jam. Not efficient.

With decomposition: (2.5%)

If we decompose a large message into several smaller messages first and then send them out, it is very unlikely that all small messages are lost. So, in case some small messages are lost, we only need to re-send those lost ones. This is far more efficient and consumes less bandwidth.

Without any example, deducts 1.5%. The example is difficult to follow, deducts 0.5%.