Final Assessment of Service Science (401077)
20 December 2013

Student Name:
Student Number:
Bachelor in:

Highest Possible Score: 100

Total number of questions: 10

Part 1. Business Services

1. Service properties (10 points)
   a) A characteristic of a service is intangibility. Explain the notion of intangibility and the consequence for the customer. Also explain an example. (5 points)
   b) Simultaneity and Perishability are two properties of services. These two properties are closely related to each other. Discuss this relation and explain an example. (5 points)

2. Strategy (10 points)
   The five forces model of Porter consists of the following forces: (1) Competitive rivalry within the industry, (2) Threat of substitutes, (3) Potential new entrants, (4) Bargaining power of customers , and (5) Bargaining power of suppliers. Explain the forces for a company offering the eService of offering disk-storage online (e.g. the S3 service of Amazon)

3. Service encounter (10 points)
   Today, organizations increasingly employ the notion of self service.
   a) Explain what self service is? (3 points)
   b) Explain why organizations use self service. (3 points)
   c) Explain an example of self service. (4 points)

4. Quality (10 points)
   Quality properties of physical goods (sometimes also called 'products') are different than properties of services. Discuss the difference between physical goods and services by explaining possible different quality properties.

5. Service supply relationships (10 points)
   During the lectures, two different supply chains have been discussed: one chain considering physical goods and one chain considering services. Discuss why the supply chain for goods is inadequate for services.

Part 2. Web Services

6. A travel agency wants to integrate its flight booking application with the car reservation application of a car rental company. They decide to integrate their applications using web services. Explain how the web services can integrate their applications (10 points).

7. One of the characteristics of web services is that “they offer self contained functionality”.

   a) Explain what self-contained functionality means (5 points).
   b) Make an example of a self-contained functionality and explain why is it self-contained (5 points).

8. The interactions in web services are based on SOAP (Simple Object Access Protocol). These interactions are of two types: Document Style and RPC style.
   a) Compare and contrast these two interaction styles (5 points)
   b) Considering the SOAP messages below describe and justify the type of interaction (5 points).

```
<soapenv:Envelope
xmlns:soapenv=http://schemas.xmlsoap.org/soap/envelope/>
    <soapenv:Body>
      <m:GetStockPrice
      xmlns:m="http://www.example.org/stock">
        <StockName>iphone</StockName>
      </m:GetStockPrice>
    </soapenv:Body>
</soapenv:Envelope
```

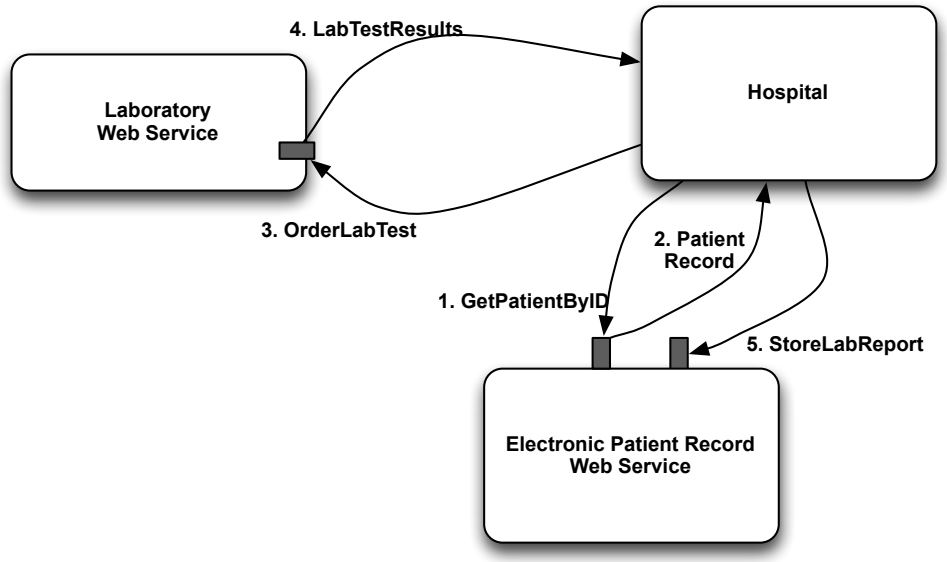
```
<soapenv:Envelope
mlns:soapenv="http://schemas.xmlsoap.org/soap/envelope/">
<soapenv:Body>
<m:GetStockPriceResponse
xmlns:m="http://www.example.org/stock"> <Price>600</Price>
        </m:GetStockPriceResponse>
    </soapenv:Body>
</soapenv:Envelope>
```

9. Related to the service description language explain:

   a) Why a service description language is needed for representing a web service (5 points)?
   b) How does WSDL achieve this objective (5 points)?

10. For its patient treatment process a hospital invokes two web services: (1) Laboratory Web Service and (2) Electronic Patient Record Web Service. The figure below represents the conversation between the hospital and the two web services. The conversation starts when the hospital requests the patient record from Patient Record Web Service. After that the hospital orders the lab test at the laboratory. The conversation ends when the hospital receives the corresponding report from the laboratory and stores it in the patient record.

    a) Considering this conversation, model the Coordination Protocol between the Hospital, Laboratory Web Service and Electronic Patient Record Web Service using an **Activity Diagram.** (5 points)
    b) Explain how the web service operation invocations are modeled in your activity diagram. (5 points)



Exam rules:
No books or reference material.
No calculator, mobile phones or other electronic devices.