

**BITS, Pilani-Dubai ,
International Academic city
IV Year Second Semester 2009-10
Degree:B.E.(Hons) Branch:C.S.E**

COURSE NO. : CS UC441

Selected topics from computer science

Date: 26th May 2010 Total marks=80 (closed book) Weight age=40%

Comprehensive Exam Answer all the questions Time- 3hrs
PART –B Answer all the questions (5 *12=60 Marks)

Q1.I want to do SSO by logging to a web site called www.passport.com and invoke the stockquote web service and weather forecast service as described below.www.Passport.com have two friendly web servers called www.stockquote.com and www.weatherforecast.com Which host stockquote web service and weatherforecast web service respectively. int getsock (String company) is the method hosted by stockquote web service whereas int getTemparature(String city) is the method hosted by weather web service. Both the web services permit only authenticated users from www.passport.com to access the same. With block diagram and soap messages outline how the above concept can be implemented.[12]

Q2 a)www.Microsoft.com is a business that deals with software manufactures and hosts a web service by name onlinecatalogue web service which is hosted on www.microsoftpartner.com . The onlinecatalogue.wsdl doc is also available from the same web site. Microsoft is also categorized under NAICS category. Initial binding for the soap message is over http. Now how using soap xml messages step by step the above information can be published in a UDDI registry. Make any valid assumptions that is required [7]

b) Later if Microsoft wants to change the binding of the web service from soap over http to soap over SMTP. How it can be notified to UDDI.?[5]

Q3.

a) In the above web page I can enter my name and password and get authenticated by submitting the web page to the www.validation.com web server which does the validation using validate.php script. But if I forget to enter the name or age or both then a message alert box has to be displayed in the client side and submission to the server should not be done in this case. Outline a mechanism to achieve the same in the client side ?[4 m]

b) In the above diagram once I do valid submission to the server, there should not be any hour glass waiting cursor (which may force the user not to do anything till the results from server is out) irrespective of the time taken by the server to do the validation .once validation is done then a message called you are authenticated should be displayed along with the original form in a html label. Outline a mechanism to achieve the same.[8M]

Q4. Given a wsdl doc as given below derive the soap req and response for the same.[12m]

```
<?xml version="1.0"?>
<?xml version="1.0" encoding="UTF-8"?>
<definitions name="HelloService"
  targetNamespace="http://www.ecerami.com/wsdl/HelloService.wsdl"
  xmlns="http://schemas.xmlsoap.org/wsdl/"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:tns="http://www.ecerami.com/wsdl/HelloService.wsdl"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema">

  <message name="SayHelloRequest">
    <part name="firstName" type="xsd:string"/>
  </message>
  <message name="SayHelloResponse">
    <part name="greeting" type="xsd:string"/>
  </message>

  <portType name="Hello_PortType">
    <operation name="sayHello">
      <input message="tns:SayHelloRequest"/>
```

```

        <output message="tns:SayHelloResponse"/>
    </operation>
</portType>

<binding name="Hello_Binding" type="tns:Hello_PortType">
    <soap:binding style="rpc"
        transport="http://schemas.xmlsoap.org/soap/http"/>
    <operation name="sayHello">
        <soap:operation soapAction="sayHello"/>
        <input>
            <soap:body
encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
                namespace="urn:examples:helloservice"
                use="encoded"/>
        </input>
        <output>
            <soap:body
encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
                namespace="urn:examples:helloservice"
                use="encoded"/>
        </output>
    </operation>
</binding>

<service name="Hello_Service">
    <documentation>WSDL File for HelloService</documentation>
    <port binding="tns:Hello_Binding" name="Hello_Port">
        <soap:address
            location="http://www.microsoft.com/soap/services/>
    </port>
</service>
</definitions>

```

Q5a). Outline the difference between enveloped xml signature, enveloping xml digital signature and detached xml signature for the following xml doc.[7]

```

<?xml version="1.0" encoding="UTF-8"?>
<PurchaseOrder xmlns="urn:purchase-order">
    <Customer>
        <Name>Robert Smith</Name>
        <CustomerId>788335</CustomerId>
    </Customer>
    <Item partNum="C763">
        <ProductId>6883-JF3</ProductId>
        <Quantity>3</Quantity>
        <ShipDate>2002-09-03</ShipDate>
        <Name>ThinkPad X20</Name>
    </Item>
</PurchaseOrder>

```

b) Derive the detached xml signature for the above xml doc.[5]

Part-A

(Answer all the questions 4*5= 20 marks)

Q1. Outline the difference between ebxml and web service using simple diagram.

Q2.How ESP security enables confidentiality and integrity of message at the IP layer level?

Q3.Alice and Bob want to send confidential information using public cryptography. Alice is only familiar with x.509 certificate whereas Bob is used to PGP certificate only. Outline a mechanism using which they can exchange conf messages in spite of the above limitation.

Q4.Once you have published a web service with proper bindings under a business in UDDI what are the effects of the following a) Deleting a business key b) Deleting a service key and c)Deleting a binding key

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COURSE NO. : CS C 441

**COURSE TITLE : :Selected topics from computer science
(web services and internet based distributed computing
Date : 9-5-2010**

Test2 Time=50 mts Total marks=20 (Closed book) Weightage=20% open book

Q1.Derive the wsdl doc for the web service whose soap req
and soap response are as given below: (5M)

```
POST    /ShowInvoiceTotal HTTP/1.1
Host: www.stockquote.com
Content-type: text/xml
Content-length:250
```

```
<?xml version="1.0"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
SOAP-ENV:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
<SOAP-ENV:Body>
  <m:GetInvoiceTotal xmlns:m="http://www.somedomain.com/invoices">
    <m:Invoice>77293</m:Invoice>
  </m:GetInvoiceTotal>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

```
HTTP/1.1 200 OK
Content-Type: text/xml
Content-Length: 230
```

```
HTTP/1.1 200 OK
Content-Type: text/xml
Content-Length: yyy
<?xml version="1.0"?>
<SOAP-ENV:Envelope xmlns:SOAP-ENV="http://schemas.xmlsoap.org/soap/envelope/"
SOAP-ENV:encodingStyle="http://schemas.xmlsoap.org/soap/encoding/">
<SOAP-ENV:Body>
  <m:ShowInvoiceTotal xmlns:m="http://www.somedomain.com/invoices">
    <m:InvoiceTotal>3295.00</m:InvoiceTotal>
  </m:ShowInvoiceTotal>
</SOAP-ENV:Body>
</SOAP-ENV:Envelope>
```

Q2. Arun wants to invoke a web service by name PurchaseOrder located at <http://www.anyorder.com> for placing a purchase order. The anyorder web server which hosts the web service do not perform any authentication directly. It has no idea about Arun but Arun knows about the same. Further www.anyorder.com trusts the authentication from the trusted site by name <http://www.login.com/>. The trusted site is also known to Arun. Outline how using SAML Arun can successfully place the purchase order for the web service. Assume any data if needed. (5M)

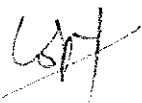
Q3. what do you mean by password digest authentication in soap request? How it prevents play back attack ? (3M)

b) Under what circumstances you use base-64 encoding of information ? (2M)

Q4 I want to perform simultaneous xml digital signing for the following docs.

- a) <http://www.google.com/notice.html>
- b) <http://www.microsoft.com/america.jpeg>

outline the resultant xml digitally signed documents (5M)
make any necessary valid assumptions.

Office 

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IV th year Second Semester 2009-2010
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COURSE NO. : CS C 441

**COURSE TITLE : :Selected topics from computer science
(web services and internet based distributed computing
Date : 28-3-2010**

Test1 Time=50 mts Total marks=25 (Closed book) Weightage=25% closed book

Answer all the questions

Q1.What are the differences between message confidentiality and message integrity? Can you have one without the other? Justify your answer.(5M)

Q2.

```
<?xml version="1.0"?>
<note>
  <to>Tove</to>
  <from>Jani</from>
  <heading>Reminder</heading>
  <body>Don't forget me this weekend!</body>
</note>
```

In the above xml doc I want to insert an element

```
<date place="Dubai">Sun day</date>
```

above the body element. Using pseudo code outline how it can be done.(5M)

Q3. what is meant by SSL security ?Justify whether it is advisable to use ssl security for invoking web service ?(5m)

Q4.what is meant by XSLT processor for an XML document ? Justify the merits of having XSLT processor in the server side and the client side ? (5M)

Q5a) For the following xml document list out the events fired by SAX parser (2.5+2.5)

```
<?xml version="1.0" encoding="UTF-8"?>
<dots>
  this is before the first dot
  and it continues on multiple lines
  <dot x="9" y="81" />
  <dot x="11" y="121" />
  <flip>
    flip is on
    <dot x="196" y="14" />
    <dot x="169" y="13" />
  </flip>
  flip is off
  <dot x="12" y="144" />
  <extra>stuff</extra>
  <!-- a final comment -->
</dots>
```

b) Draw the tree structure a DOM parser will create for the above XML document.

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IV th CSE second semester 2009-10
CS C441 Selected topics from cse
Quiz 2: Total time:20 mts marks:7 (closed book)
7th april 2010 Answer all the questions

Q1.what is the need for security parameter index in IP security?(1M)

Q2. How play back attack is overcome in IP security?(1m)

Q3.suppose you are performing xml encryption of a file Image.jpeg.How the file would look after xml encryption?(1M)

Q4.After XML encryption of a XML doc I get the following result. How the receiver will decrypt and get the original non encrypted xml document? (2 M)

```
<EncryptedData>  
<EncryptionMethod Algorithm=http://www.w3.org/2001/04/xmlenc#aes128-cbc" />  
<ds:KeyInfo xmlns:ds="http://www.w3.org/2000/09/xmldsig#" />  
<EncryptedKey>  
<EncryptionMethod Algorithm=http://www.w3.org/2001/04/  
xmlenc#rsa-1_5" />  
<ds:KeyInfo xmlns:ds=http://www.w3.org/2000/09/xmldsig#" />
```

```
<ds:X509Data>
<ds:X509SubjectName>
o=MyCompany,ou=Engineering,cn=Dave Remy
</ds:X509SubjectName>
</ds:X509Data>
<ds:/KeyInfo>
<CipherData>
<CipherValue>...</CipherValue>
</CipherData>
</EncryptedKey>
</ds:/KeyInfo>
<CipherData>
<CipherValue>...</CipherValue>
</CipherData>
</EncryptedData>
```

Q5.What is IP spoofing and how it can be avoided ?(1M)

Q6.Illustrate any one advantage of IP security over ssl security?(1M)

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IV th Year Second Semester 2009-10

Degree:B.E.(HONS) Branch:C.S.E

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(web services and internet based distributed computing)**

Time :20 mts

Date :23-2-2010

Marks: 8 Quiz1 Closed book

Q1.What do you mean by “components can be transparently relocated across Different machines without change in line of code for the client of the component”?

Q2.why there is a need for http headers + xml for invoking a web service ?

Q3. An xml schema is given below:

```
<?xml version="1.0" encoding="utf-8"?>
<xs:schema elementFormDefault="qualified"
xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:element name="Address">
    <xs:complexType>
      <xs:sequence>
        <xs:element name="Recipient" type="xs:string" />
        <xs:element name="House" type="xs:string" />
        <xs:element name="Street" type="xs:string" />
        <xs:element name="Town" type="xs:string" />
        <xs:element name="County" type="xs:string"
minOccurs="0" />
        <xs:element name="PostCode" type="xs:string" />
        <xs:element name="Country">
          <xs:simpleType>
            <xs:restriction base="xs:string">
```

```

        <xs:enumeration value="FR" />
        <xs:enumeration value="DE" />
        <xs:enumeration value="ES" />
        <xs:enumeration value="UK" />
        <xs:enumeration value="US" />
    </xs:restriction>
</xs:simpleType>
</xs:element>
</xs:sequence>
</xs:complexType>
</xs:element>
</xs:schema>

```

Derive an xml doc that conforms to the above schema?

Q4. POST /Stock HTTP/1.1

Host: www.stock.org

Content-Type: application/soap+xml; charset=utf-8 Content-Length: 150

```

<?xml version="1.0"?>
<soap:Envelope
xmlns:soap="http://www.w3.org/2001/12/soap-envelope"
soap:encodingStyle="http://www.w3.org/2001/12/soap-encoding">

    <soap:Body xmlns:m="http://www.stock.org/stock">
        <m:GetStockPrice>
            <m:StockName>IBM</m:StockName>
        </m:GetStockPrice>
    </soap:Body>
</soap:Envelope>

```

A web service is invoked using the above type of soap request. Justify whether the web service is RPC or document centric?

Q5. Supposed there is no UDDI registry. What will be the effect of the same ?

Q6. Why there is a need for WSDL document for a web service ?

Q7. Specify any 2 important advantages of DOM parser over SAX parser?

Q8. How across internet web browser and web server can communicate in spite of platform and language independence whereas using RMI the same thing can not be achieved ?