

**BITS, Pilani-Dubai ,  
International Academic city  
IV Year Second Semester 2007-08  
Degree: B.E.(Hons) Branch: C.S.E**

**COURSE NO. : CS UC441**

**Date: 26<sup>th</sup> Oct 2008**

**Test1**

**Selected topics from computer science**

**Total marks=25 (open book) Weightage=25%**

**Answer all the questions Time- 50 mts**

Q1. I want to parse the XML document given below using SAX parser. In the process I just want to print out the name of the publisher and the value of its attribute. Outline with the help of pseudo code how it can be made possible ? (5Marks)

```
<?xml version="1.0" encoding="UTF-8"?>  
<BOOK>  
<AUTHOR> Aho, A. V. </AUTHOR>  
<TITLE> Compilers: Principles, Techniques, and Tools </TITLE>  
<PUBLISHER country="USA"> Addison-Wesley </PUBLISHER>  
<YEAR> 1985 </YEAR>  
</BOOK>
```

Q2.. With respect to the XML document in Q1 we want to add an element `<Price> 20</Price>` after the publisher element using DOM parser. Outline how it can be done using appropriate pseudo code.(5M)

Q3. What are the differences between message confidentiality and message integrity? Can you have one without the other? Justify your answer. (5M)

Q4. Outline clearly the difference between RPC and Document centric web services with simple examples. (5M)

Q5. Outline the difference between in intranet and internet based SOA with simple examples. (5M)

**BITS, Pilani-Dubai**

**International academic city, Dubai**

**IV th Year 2008-09**

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

**COURSE NO. : CS UC441 COURSE TITLE: Selected topics from computer science  
(web services and internet based distributed computing)**

Time :50 mts

Date :10-12-2008

Marks: 20 Test2

(weightage=20 %) *open book test Answer all the questions*

1. Using XML Digital signature technique sign the following XML document listing out the necessary steps. Make necessary valid assumptions (5M)

```
<?xml version="1.0"?>
<Payment>
  <name> Arun </name>
  <CreditcardNo>264178</CreditcardNo>
</name>
  <Expiry> jun 2009</Expiry>
</payment>
```

2. Outline how the WEP security can be compromised in WLAN ?(3+2m)

Assume that a node in wireless lan starts transferring secured data using WEP. I want to delay the WEP attack such that it happens approximately after 2 hrs after the beginning of transmission. How this can be made possible ? Assume that each frame contains 1000bits of data

3. Assume that two applications A and B want to have interchange of XML docs with integrity. Let A uses X.509 PKI whereas B uses PGP type of PKI.(5M)

a) We want the application A and B not to bother about processing the certificate

b) Even if application A or B lost its private key there should be a means to get it back safely

c) Let A and B has the means to send the certificate information in the form of URL but they need some mechanism to ensure that the certificate is not in the revoked list.

Outline a mechanism to implement the same.

4. Derive the wsdl document for the following web service whose soap request and response are given below: Make necessary valid assumptions.(5M)

## SOAP Request

```
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>
```

# SOAP Response

HTTP/1.1 200 OK

Content-Type: application/soap; charset=utf-8

Content-Length: 126

<?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:GetStockPriceResponse>

<m:Price>34.5</m:Price>

</m:GetStockPriceResponse>

</soap:Body>

</soap:Envelope>

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**IV th Year FIRST Semester 2008**

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

**COURSE NO. : CS UC441 COURSE TITLE: Selected topics from computer science  
(web services and internet based distributed computing)**

**Time :15 mts**

**Date :15-10-2008**

**Marks: 5 Quiz1 Closed book**

**Q1..What are the main differences between Document centric and RPC centric web services?**

**Q2. Why a WSDL document is required by a client of the web service ?**

**Q3.Specify important advantages of component based software architecture compared to non component architecture**

**Q4.Specify the problems that have to be addressed in internet based distributed computing compared to intranet based distributed computing.**

**Q5.Draw the block diagram of SOA and explain briefly the modules .**

**BITS, Pilani-Dubai Campus, Knowledge Village, Dubai**  
**IV the Year Second Semester 2007**  
**Degree: B.E. (Hons) Branch: C.S.E**

**COURSE NO. : CS UC441**

**Selected topics from computer science**

**Date: 29-10-08**

**Total marks=5 (closed book) Weightage=5%**

**Quiz 2**

**Answer all the questions Time-15 mts**

Q1. Justify the need for certificate revocation list in PKI ?

Q2. Justify the need for digital certificate in PKI ?

Q3. Specify one important advantage and disadvantage of using Dom parser over SAX parser

Q4. I want to create an XML document containing one root element and a child element using DOM parser. Outline how it can be done ?

Q5. What is meant by playback attack and how it can be overcome ?

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IV th Year FIRST Semester 2008

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

**COURSE NO. : CS UC441**

**COURSE TITLE: Selected topics from computer science  
(web services and internet based distributed computing)**

Time :15 mts

Date :21-12-2008

Marks: 5 Quiz3 Closed book

Q1. Why there is a need for adding category bag during publishing of web service ?

Q2. Why there is a need for qualifiers when you search the UDDI ?

Q3.How the information is organized in various pages of UDDI registry when you publish a web service ?

Q4.how the technical information about a service is made known to UDDI ?

Q5. suppose you want to delete a stock quote service from a business IBM since IBM no longer wants to host the service. How will you do the same in UDDI ?



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IV th Year FIRST Semester 2008

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**COURSE NO. : CS UC441**

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(web services and internet based distributed computing)**

Time :15 mts

Date :21-12-2008

Marks: 5 Quiz, assignment open

Q1. how will you a create a non validation parser in DOM ?

Q2 Using what syntax will you select a algorithm for key generation in Public key cryptography?

Q3.how will you verify the digital signature of a signed document ?

Q4. Cipher cipher =  
Cipher.getInstance("RSA/ECB/PKCS1Padding");  
what does the above code does ?

Q5. what are the modes of operation for Cipher object ?

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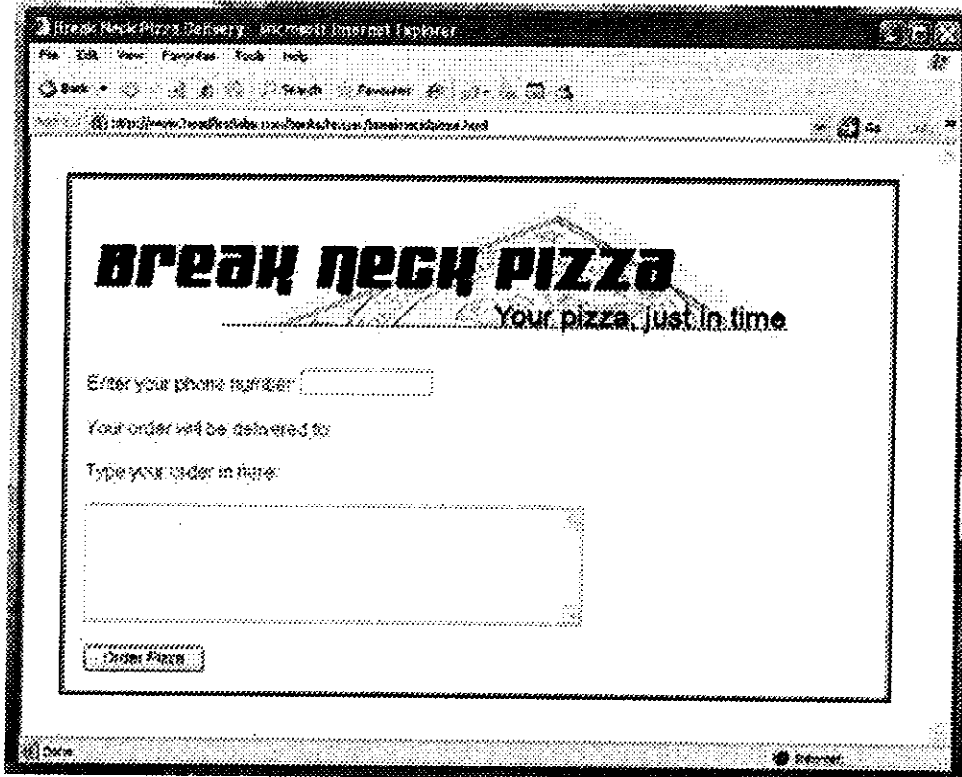
Time : 3hrs Date : 31-12-2008 Marks: 60 Compre exam closed book  
(weightage=40 %)

Part\_A Answer all the questions (5\*2 =10 M)

- Q1. what is the difference between AH type of IP layer security compared to ESP type of security
- Q2. Justify whether man in the middle attack can happen in symmetric cryptography
- Q3. consider A, B and C want to communicate using asymmetric and symmetric crypto. How many distinct keys each one of them should have for a) symmetric crypto b) for asymmetric crypto
- Q4. What is the difference between organization of UDDI and ebxml registry
- Q5. what is meant by playback attack and how it can be overcome in cryptography ?

Part -B (5 \* 10=50 marks)( all questions carry equal marks)

- Q1. a) Compare the merits of asynchronous web form submission applications with respect to synchronous version of the same ? (3M)
- b) In the example given below the purchaser of the pizza enters his phone number. Then he goes directly and enter the items he want to order. How will you make use of ajax to get the address of the person to deliver the pizza items from his phone number. (7M)



Q2. outline how the following information is published in UDDI ?(3+3+4)

- a) Business information
- b) web services under the business
- c) Why there is a need for appending category bag or identifier bag when we publish business or services under the same ?

Q3.a) Outline the superiority of XML security compared to SSL security .(4M)

b) Outline how a XML digitally signed document is validated in the receiving end ?(6M)

Q4.Using the **ProductService.wsdl** document given below form the **soap request and response message**. (5M+5M)

```
<?xml version="1.0" encoding="UTF-8"?>
<definitions name="ProductService"
```

```
targetNamespace="http://www.ecerami.com/wsdl/ProductService.wsdl"
  xmlns="http://schemas.xmlsoap.org/wsdl/"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:tns="http://www.ecerami.com/wsdl/ProductService.wsdl"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:xsd1="http://www.ecerami.com/schema">
```

```

<types>
  <xsd:schema
    targetNamespace="http://www.ecerami.com/schema"
    xmlns="http://www.w3.org/2001/XMLSchema">
    <xsd:complexType name="product">
      <xsd:sequence>
        <xsd:element name="name" type="xsd:string"/>
        <xsd:element name="description"
type="xsd:string"/>
        <xsd:element name="price" type="xsd:integer"/>
        <xsd:element name="SKU" type="xsd:string"/>
      </xsd:sequence>
    </xsd:complexType>
  </xsd:schema>
</types>

<message name="getProductRequest">
  <part name="sku" type="xsd:string"/>
</message>

<message name="getProductResponse">
  <part name="product" type="xsd1:product"/>
</message>

<portType name="Product_PortType">
  <operation name="getProduct">
    <input message="tns:getProductRequest"/>
    <output message="tns:getProductResponse"/>
  </operation>
</portType>

<binding name="Product_Binding" type="tns:Product_PortType">
  <soap:binding style="rpc"
    transport="http://schemas.xmlsoap.org/soap/http"/>
  <operation name="getProduct">
    <soap:operation soapAction="urn:examples:productservice"/>
    <input>
      <soap:body
encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
  namespace="urn:examples:productservice"
  use="encoded"/>
    </input>
    <output>
      <soap:body
encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
  namespace="urn:examples:productservice"
  use="encoded"/>
    </output>
  </operation>
</binding>

```

```

    <service name="Product_Service">
      <port name="Product_Port" binding="tns:Product_Binding">
        <soap:address
location="http://localhost:8080/soap/servlet/rpcrouter"/>
        </port>
      </service>
    </definitions>

```

Q5. a)

This XML carries HTML table information:

```

<table>
  <tr>
    <td>Apples</td>
    <td>Bananas</td>
  </tr>
</table>

```

This XML carries information about a table (a piece of furniture):

```

<table>
  <name>African Coffee Table</name>
  <width>80</width>
  <length>120</length>
</table>

```

I want to combine the above XML documents into a single one. How that can be done?(4M)

b) Derive an XML document that matches the schema below (6M)

```

<?xml version="1.0" encoding="UTF-8"?>
<xsd:schema xmlns:xsd="http://www.w3.org/2001/XMLSchema">
  <xsd:element name="address">
    <xsd:complexType>
      <xsd:sequence>
        <xsd:element ref="name"/>
        <xsd:element ref="street"/>
        <xsd:element ref="city"/>
        <xsd:element ref="state"/>
        <xsd:element ref="postal-code"/>
      </xsd:sequence>
    </xsd:complexType>
  </xsd:element>

  <xsd:element name="name">

```

```
<xsd:complexType>
  <xsd:sequence>
    <xsd:element ref="title" minOccurs="0"/>
    <xsd:element ref="first-Name"/>
    <xsd:element ref="last-Name"/>
  </xsd:sequence>
</xsd:complexType>
</xsd:element>
<xsd:element name="title" type="xsd:string"/>
<xsd:element name="first-Name" type="xsd:string"/>
<xsd:element name="last-Name" type="xsd:string"/>
<xsd:element name="street" type="xsd:string"/>
<xsd:element name="city" type="xsd:string"/>
<xsd:element name="state">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string">
      <xsd:length value="2"/>
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
<xsd:element name="postal-code">
  <xsd:simpleType>
    <xsd:restriction base="xsd:string">
      <xsd:pattern value="[0-9]{5}(-[0-9]{4})?"/>
    </xsd:restriction>
  </xsd:simpleType>
</xsd:element>
</xsd:schema>
```