

**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:27th may 2008

Comprehensive exam

Selected topics from computer science

Total marks=60 (open book) Weightage=40%

Answer all the questions Time- 3 hrs

PART-A (5*2=10 M)

- Q1. Outline the difference between web service and ebxml
Q2. What are the types of category bags for classifying web service in UDDI ?
Q3. Consider WEP security used in wireless lan. Let the size of the frame is 1000bits. Suppose the 24-bit vector (thus the 64-bit key also) key get repeated approximately after say 3 secs. Then what should be the rate of the wireless data link in bits/sec
Q4. Specify two important advantages of ESP type of IP security compared to AH type of IP-security
Q5. Compare the difference in authentication mechanism provided by KDC and certificate authority.

PART-B Answer all the questions .All carry equal marks

- Q1a) Outline clearly the advantages of ajax enabled web application compared to non-ajax applications (5M)
b). Design an Ajax enabled auto completion application which will be used for selecting frequently used names in a text box with necessary block diagram.(5M)
Q2. Two applications A and B want to securely transfer data across the internet using appropriate encryption and decryption.
a) The applications wish to plug in different PKI solutions based on the need, without requiring any modification of the application itself.
b) The applications do not have any means to generate the keys as well as interpreting the digital certificates exchanged.
c) They also need a mechanism to convey the loss of keys and take protective measures.
With necessary diagrams design an appropriate mechanism to solve the above problem step by step.
(10M)

- Q3a) Outline clearly support for web services as well as secured web services development in java and C# IDEs.(5M)
b) How will you build a web service client for invoking say a stockquote web service ? (5M)

Q4. Given below is the WSDL document for a web service

```
<?xml version="1.0" encoding="UTF-8"?>
<definitions
  name="WeatherSummary"
  targetNamespace=
    "http://www.roguewave.com/soapworx/examples/WeatherSummary.wsdl"
  xmlns="http://schemas.xmlsoap.org/wsdl/"
  xmlns:soap="http://schemas.xmlsoap.org/wsdl/soap/"
  xmlns:tns=
    "http://www.roguewave.com/soapworx/examples/WeatherSummary.wsdl"
  xmlns:xsd="http://www.w3.org/2001/XMLSchema"
  xmlns:wsx=
    "http://www.roguewave.com/soapworx/examples/WeatherSummary.xsd">
  <types>
    <xsd:schema
      targetNamespace=
        "http://www.roguewave.com/soapworx/examples/WeatherSummary.xsd"
        xmlns:SOAP-ENC="http://schemas.xmlsoap.org/soap/encoding/"
        xmlns:wsdl="http://schemas.xmlsoap.org/wsdl/"
        xmlns:xsd="http://www.w3.org/2001/XMLSchema">
      <xsd:complexType name="WeatherSummary">
        <xsd:sequence>
          <xsd:element maxOccurs="1" minOccurs="1" name="zipcode"
            nillable="true" type="xsd:string"/>
          <xsd:element maxOccurs="1" minOccurs="1"
            name="windSpeed"
            nillable="true" type="xsd:unsignedInt"/>
          <xsd:element maxOccurs="1" minOccurs="1" name="sky"
            nillable="true" type="xsd:string"/>
          <xsd:element maxOccurs="1" minOccurs="1" name="temp"
            nillable="true" type="xsd:int"/>
        </xsd:sequence>
      </xsd:complexType>
    </xsd:schema>
  </types>
  <message name="getSummary">
    <part name="zipcode" type="xsd:string"/>
  </message>
  <message name="updateWeather">
    <part name="weatherData" type="wsx:WeatherSummary"/>
    <part name="port" type="xsd:string"/>
    <part name="transportName" type="xsd:string"/>
    <part name="weatherData" type="wsx:WeatherSummary"/>
  </message>
  <message name="getSummaryResponse">
    <part name="weatherData" type="wsx:WeatherSummary"/>
  </message>
```

```

<portType name="WeatherSummary">
  <!-- request-responserequest-response -->
  <operation name="getSummary">
    <input message="tns:getSummary"/>
    <output message="tns:getSummaryResponse"/>
  </operation>
  <!-- One-way -->
  <operation name="updateWeather">
    <input message="tns:updateWeather"/>
  </operation>
  <!-- Notification -->
  <operation name="weatherNotification">
    <output message="tns:getSummaryResponse"/>
  </operation>
</portType>

<binding name="WeatherSummary" type="tns:WeatherSummary">
  <soap:binding style="rpc"
    transport="http://schemas.xmlsoap.org/soap/http"/>
  <operation name="getSummary">
    <soap:operation soapAction="getSummary"/>
    <input>
      <soap:body use="encoded"
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
        namespace="http://www.roguewave.com/soapworx/examples"/>
      <soap:header message="tns:getSummary" part="header"
        use="literal"/>
    </input>
    <output>
      <soap:body use="encoded"
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
        namespace="http://www.roguewave.com/soapworx/examples"/>
    </output>
  </operation>
  <operation name="updateWeather">
    <soap:operation soapAction="updateWeather"/>
    <input>
      <soap:body use="encoded"
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
        namespace="http://www.roguewave.com/soapworx/examples"/>
    </input>
    </operation>
  <operation name="weatherNotification">
    <soap:operation soapAction="weatherNotification"/>
    <output>
      <soap:body use="encoded"
        encodingStyle="http://schemas.xmlsoap.org/soap/encoding/"
        namespace="http://www.roguewave.com/soapworx/examples"/>
    </output>
  </operation>
</binding>

```

```
</operation>  
</binding>
```

```
<service name="WeatherSummary">  
  <documentation>WeatherSummary</documentation>  
  <port name="WeatherSummary" binding="tns:WeatherSummary">  
    <soap:address  
      location="http://localhost:8090/weather/WeatherSummary"/>  
  </port>  
</service>  
</definitions>
```

The above definition is the WSDL definition for a web service.

- a) Specify the methods and parameters of the methods supported by the web service.
- b) Message flows for each method
- c) The type of binding for soap messages
- d) The url where the web service is located

Q5.a)compare the UDDI with ebxml repository.(5M)

b)Specify the steps involved in publishing a stock quote web service under a business IBM (5M)

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Date:3rd may 2008

Test2

**Selected topics from computer science
Total marks=20 (open book) Weightage=20%
Answer all the questions Time-50mts**

(only prescribed text and reference books as well as class notes are permitted)

Q1.Outline clearly in xml digital signature why there is a need for finding out two types of digests with simple examples?(4M)

Q2.Outline how will you design a saml based system for doing back office transaction using SSO with the help of appropriate block diagram(4M)

Q3)Outline with example a major loop hole in WEP security of wireless lan and how and when it occurs ?(4M)

Q4.Outline clearly how Alice gets authenticated with Bob using Key Distribution centre(KDC)(4M)

Q5. Outline clearly the merits of XML encryption compared to SSL using a case study.(4M)

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COURSE NO. : CS UC 441

COURSE TITLE : Selected topics from computer science
(web services and internet based distributed computing)
Date : 23-3-2008

Test1

Total marks=20 (Closed book) Weightage=20%

Answer all the questions

Q1. Outline the steps involved in parsing and getting all the information from the following xml document using DOM parser. (5 M)

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

```
<BOOK>
```

```
<AUTHOR COUNTRY="INDIA"> Aho, A. V. </AUTHOR>
```

```
<TITLE> Compilers: Principles, Techniques, and Tools </TITLE>
```

```
<PUBLISHER> Addison-Wesley </PUBLISHER>
```

```
<YEAR> 1985 </YEAR>
```

```
</BOOK>
```

Q2. With respect to the above XML document I want to add an element `<ISBN>20035</ISBN>` after the PUBLISHER element but before the YEAR element. (3M)

Q3. Derive the XML schema for the following XML document (3M)

```
<BOOK>
```

```
<AUTHOR > Aho, A. V. </AUTHOR>
```

```
<TITLE> Compilers: Principles, Techniques, and Tools </TITLE>
```

```
<PUBLISHER> Addison-Wesley </PUBLISHER>
```

```
<YEAR> 1985 </YEAR>
```

```
</BOOK>
```

Q4. a) Why there is a need for XSLT processor? (2M)

b) With appropriate reasons justify whether we can use XSLT processor on the server or browser side? (3M)

Q5. WRT the below XML document I want to print the contents of AUTHOR element using SAX parser. Outline how it can be done? (4M)

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

```
<BOOK>
```

```
<AUTHOR COUNTRY="INDIA"> Aho, A. V. </AUTHOR>
```

```
<TITLE> Compilers: Principles, Techniques, and Tools </TITLE>
```

```
<PUBLISHER> Addison-Wesley </PUBLISHER>
```

```
<YEAR> 1985 </YEAR>
```

```
</BOOK>
```