

**IT2353 WEB TECHNOLOGY  
QUESTION AND ANSWERS  
UNIT I - PART A (2 MARKS)**

**1. Define the term Internet**

The **Internet** is a global system of interconnected computer networks that use the standard Internet Protocol Suite (TCP/IP) to serve billions of users worldwide. It is a network of networks that consists of millions of private, public, academic, business, and government networks, of local to global scope, that are linked by a broad array of electronic and optical networking technologies.

**2. What is the difference between TCP and UDP?**

TCP:

- Connection oriented transport protocol
- Sends data as a stream of bytes
- Guarantee of delivery

UDP:

- Connection less protocol
- Datagram service
- No guarantee of delivery.

**3. Give the important terminologies in HTTP Connection**

A transport layer virtual circuit established between two application programs for the purpose of communication.

**Message**

The basic unit of HTTP communication, consisting of a structured sequence of octets matching the syntax defined in and transmitted via the connection.

**Request**

An HTTP request message.

**Response**

An HTTP response message.

**4. Define the GET() and POST() method**

**GET()**

The GET method means retrieve whatever information (in the form of an entity) is identified by the Request-URI. If the Request-URI refers to a data-producing process, it is the produced data which shall be returned as the entity in the response and not the source text of the process, unless that text happens to be the output of the process.

**POST()**

The POST method is used to request that the destination server accept the entity enclosed in the request as a new subordinate of the resource identified by the Request-URI in the Request-Line

## 5. What is HTML?

- HTML is a language for describing web pages.
- HTML stands for **Hyper Text Markup Language**
- HTML is not a programming language, it is a **markup language**
- A markup language is a set of **markup tags**
- HTML uses **markup tags** to describe web pages

## 6. How to implement the HTML Links

HTML links are defined with the <a> tag.

```
<a href="http://www.w3schools.com">This is a link</a>
```

## 7. Define HTML Tables

Tables are defined with the <table> tag. A table is divided into rows (with the <tr> tag), and each row is divided into data cells (with the <td> tag). td stands for "table data," and holds the content of a data cell. A <td> tag can contain text, links, images, lists, forms, other tables, etc.

## 8. How to declare the HTML Forms

HTML forms are used to pass data to a server. A form can contain input elements like text fields, checkboxes, radio-buttons, submit buttons and more. A form can also contain select lists, textarea, fieldset, legend, and label elements. The <form> tag is used to create an HTML form:

```
<form> .input elements .</form>
```

## 9. What is Document type declaration (DTD)

HTML documents are required to start with a Document Type Declaration (informally, a "doctype"). In browsers, the doctype helps to define the rendering mode—particularly whether to use quirks mode.

An example of an HTML 4 doctype is

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01//EN" "http://www.w3.org/TR/html4/strict.dtd">
```

## 10. Compare SGML-based versus XML-based HTML

The XML-based specification is usually called XHTML to distinguish it clearly from the more traditional definition. However, the root element name continues to be 'html' even in the XHTML-specified HTML. The W3C intended XHTML 1.0 to be identical to HTML 4.01 except where limitations of XML over the more complex SGML require workarounds. Because XHTML and HTML are closely related, they are sometimes documented in parallel.

## UNIT I - PART B (16 Marks)

### 1. Briefly Explain the Internet concepts

- A very brief history of the internet
  - Basic internet protocols
- About TCP/IP
- Network of lowest bidders
- Addresses and subnets

## **2. Explain About the World Wide Web**

- WWW
- Linking
- Dynamic updates of web pages
- Caching

## **3. Explain the Components of HTTP**

- About Hypertext Transfer Protocol -- HTTP/1.0
- Terminology
- Overall Operation
- HTTP and MIME
- Protocol Parameters
- Uniform Resource Identifiers
- HTTP URL
- Date/Time Formats
- Character Sets
- Content Codings
- Media Types
- HTTP Message

## **4. Compare Web servers with Web Clients**

- Web servers
- Web clients

## **5. Explain the Fundamental HTML Elements**

- What is HTML?
- HTML Tags
- HTML Documents
- HTML Elements
- HTML Element Syntax
- Nested HTML Elements
- HTML Document Example
- EMPTY HTML ELEMENTS
- HTML Attributes
- HTML HEADINGS
- HTML Formatting Tags

## **6. Write a short notes on HTML Tables**

- HTML Tables and the Border Attribute
- HTML Table Headers

## **7. Write Short notes on HTML LISTS and HTML Forms**

- **HTML LISTS**
  - o HTML Unordered Lists
  - o HTML Ordered Lists
  - o HTML Definition Lists
  - o HTML List Tags
- **HTML FORMS**
  - o HTML Forms - The Input Element
  - o Text Fields
  - o Password Field
  - o Radio Buttons
  - o Checkboxes
  - o Checkboxes
  - o Submit Button
  - o HTML Form Tags

### 8. Explain about XML and how to Create HTML Documents with the help of XML

- Elements
- Element examples
- Paragraphs:
- Comments:
- Attributes
- Character and entity references
- Data types
- Document type declaration
- Semantic HTML
- Delivery

### UNIT II - PART A (2 MARKS)

#### 1. What is CSS?

Cascading Style Sheets (CSS) is a slightly misleading term, since a website might have only one CSS file (style sheet), or the CSS might be embedded within an HTML file. It is better to think of CSS as a technology (in the singular). CSS is comprised of statements that control the styling of HTML documents. Simply put, an HTML document should convey content. A CSS document should control the styling of that content.

#### 2. What are the types of rules?

##### Type 1: Rules

Statement + statement block X {declaration; declaration;} X {property; value; property: value;}  
 div > p {font-size: 1em; color #333;}

**Type 2: At-Rules** at-keyword + identifier + declaration @import "subs.css";

#### 3. What is selector and mention its types also

Selectors refer to elements in an HTML document tree

##### Type of Selector

- Universal Selector
- Class Selector
- ID Selector and Descendant Selector

#### **4. Mention all the text properties**

- Color Direction
- Line-height Letter-spacing
- Text-align Text-decoration
- Text-indent Text-shadow
- Text-transform Unicode-bidi
- Vertical-align White-space
- Word-spacing

#### **5. What is the purpose of CSS Box Model and mention its parts also.**

The CSS box model is essentially a box that wraps around HTML elements, and it consists of: margins, borders, padding, and the actual content.

The different parts are:

- Margin
- Border
- Padding
- Content

#### **6. Define the term positioning and mention its types also.**

The CSS positioning properties allow you to position an element. It can also place an element behind another, and specify what should happen when an element's content is too big. There are four different positioning methods.

- Static Positioning
- Fixed Positioning
- Relative Positioning
- Absolute Positioning

#### **7. What is JavaScript?**

- JavaScript was designed to add interactivity to HTML pages
- JavaScript is a scripting language
- A scripting language is a lightweight programming language
- A JavaScript consists of lines of executable computer code
- A JavaScript is usually embedded directly into HTML pages

#### **8. Are Java and JavaScript the Same?**

NO!.Java and JavaScript are two completely different languages in both concept and design. Java (developed by Sun Microsystems) is a powerful and much more complex programming language - in the same category as C and C++.

## 9. How to Put a JavaScript Into an HTML Page

```
<html>
<body>
<script type="text/javascript">
document.write("Hello World!");
</script>
</body>
</html>
```

## 10. What are literals?

Literal values are the ones you type into mathematical or string expressions. For example 23 (an integer), 12.32E23 (a floating point), or 'flopsy the Hamster' (a string). String literals can be enclosed by either single or double quotes. For example:

```
'literal string'
"literal string"
'literal string with "double quotes" inside'
```

## UNIT II - PART B (16 Marks)

### 1. Write short notes on CSS.

- Features
- Core Syntax
- At-Rules
- CSS1 Selectors

### 2. Explain concept of Cascading and inheritance Concepts in CSS

- Specificity
- Rule Cascade
- Style Inheritance

### 3. Discuss the text properties of CSS with Suitable Example.

- CSS Font Families
- Font Family
- Font Style
- Font Size
- Set Font Size With Pixels
- Set Font Size With Em
- All CSS Font Properties
- Text Formatting and color
- All CSS Text Properties

### 4. With the neat block diagram explain the CSS Box Model

- Block diagram
- Width and Height of an Element

- Example
- CSS Background
- Background - Shorthand property
- All CSS Background Properties

## **5. Discuss the role of Normal Flow Box Layout in CSS and also discuss about positioning in CSS**

- Normal Flow Box Layout
  - Padding, Borders, Margins
  - Traditional vs. W3C Box Models
  - Margin Collapse
  - Display Property
- Positioning
  - Static Positioning
  - Fixed Positioning
  - Relative Positioning
  - Absolute Positioning
  - Overlapping Elements
  - All CSS Positioning Properties

## **6. Explain the elements of JavaScript with relevant examples**

- Basic syntax
- Javascript variables and datatypes
- Javascript statements
- Javascript operators
- Javascript literal values
- Javascript functions

## **7. Explain about the use of Objects in JavaScript.**

- Creating a Custom JavaScript Object
- Creating and Using Object Instances
- Extending Objects
- Built-in objects
- JavaScript Boolean Object
- JavaScript RegExp Object

## **8. Explain about Java Debuggers.**

- Firebug
- Venkman JavaScript Debugger
- Internet Explorer debugging
- JTF: Javascript Unit Testing Farm
- jsUnit
- Built-In Debugging Tools

- Common Mistakes
- Debugging Methods
- Browser Bugs

## UNIT III - PART A (2 MARKS)

### 1. What is DOM?

The Document Object Model (DOM) is the model that describes how all elements in an HTML page, like input fields, images, paragraphs etc., are related to the topmost structure: the document itself. By calling the element by its proper DOM name, we can influence it

### 2. What are the 2 traditional ways of assigning event handlers in DOM

- 1) Via HTML, using attributes
- 2) Via scripting

### 3. How to change an HTML Element with the help of DOM.

The following example changes the background color of the <body> element:

#### Example

```
<html> <body> <script type="text/javascript"> document.body.backgroundColor="lavender"; </script>
</body> </html>
```

### 4. How to add Nodes in DOM Tree.

- Nodes can also be added to the DOM. You've already seen how attribute nodes can be created and applied to an element so let's look at adding element and text nodes within the document tree (without using the innerHTML property).
- The first step is to create a node object of the type you want using one of document.createElement(), document.createAttribute() or document.createTextNode(). For attributes, however, you'll probably just want to create an element node and assign it attributes directly

### 5. What are the types of nodes in DOM Tree?

**Element nodes**, as we've seen, correspond to individual tags or tag pairs in the HTML code. They can have child nodes, which may be other elements or text nodes.

**Text nodes** represent content, or character data. They will have a parent node and possibly sibling nodes, but they cannot have child nodes.

**Attribute nodes** are a special case. They are not considered a part of the document tree - they do not have a parent, children or siblings. Instead, they are used to allow access to an element node's attributes

### 6. What is Window Object in DOM?

The window object represents an open window in a browser. If a document contains frames (<frame> or <iframe> tags), the browser creates one window object for the HTML document, and one additional window object for each frame. Some of the window object properties are:

- closed
- document



- frames
- history

### **7. What is a Servlet?**

Servlets are modules of Java code that run in a server application (hence the name "Servlets", similar to "Applets" on the client side) to answer client requests. Servlets are not tied to a specific client-server protocol but they are most commonly used with HTTP and the word "Servlet" is often used in the meaning of "HTTP Servlet".

### **8. Compare Servlet with CGI**

Servlets have several advantages over CGI:

- A Servlet does not run in a separate process. This removes the overhead of creating a new process for each request.
- A Servlet stays in memory between requests. A CGI program (and probably also an extensive runtime system or interpreter) needs to be loaded and started for each CGI request.
- There is only a single instance which answers all requests concurrently. This saves memory and allows a Servlet to easily manage persistent data.

### **9. How the Sessions can be maintained in Session tracking?**

1. By using Cookies. A Cookie is a string (in this case that string is the session ID) which is sent to a client to start a session. If the client wants to continue the session it sends back the Cookie with subsequent requests. This is the most common way to implement session tracking.
2. By rewriting URLs. All links and redirections which are created by a Servlet have to be encoded to include the session ID. This is a less elegant solution (both, for Servlet implementors and users) because the session cannot be maintained by requesting a well-known URL or selecting a URL which was created in a different (or no) session.

### **10. How was the Concurrency on a single-processor machine handled.**

Concurrency is still often an issue on a single-processor machine because processes are usually swapped in and out of the available processor under interrupt. One process cannot necessarily predict when another one is going to "step in" and potentially change some data that it was in the middle of accessing. And the issue of not "wasting" the CPU still remains: if process 1 is waiting for data from the hard disk, and thus cannot usefully use the CPU, it would be useful to let process 2 use the CPU in the meantime

## **UNIT III - PART B (16 Marks)**

### **1. Write short notes on DOM model**

- Nodes
- Walking through the DOM tree
- DOM Levels and history

## **2. How HTML elements can be changed using JavaScript, the HTML DOM and events.**

- Modifying Element Style
- Change an HTML Element
- Change the Text of an HTML Element - innerHTML
- Change an HTML Element Using Events
- Change the Text of an Element - with a Function
- Using the Style Object
- Change the font and color of an Element

## **3. What are important elements in DOM Tree**

- Nodes
- The Document Root
- Traversing the Document Tree
- Accessing Elements Directly
- Node Types
- Attributes vs. Attribute Nodes
- Style Attributes

## **4. The DOM Event Handling was performed? Explain**

- Assigning Event Handlers
- HTML Tag Attributes
- Scripting
- Event Listeners
- Event Flow
- Event Bubbling
- Event Capture
- Event Flow Example
- The Event Object
- Mouse Events
- Keyboard Events
- Handling Events

## **5. Write short notes on Window Object**

- Window Object
- Window Object Properties
- Window Object Methods

## **6. Explain the basic servlet architecture with the diagram**

- javax.servlet.Servlet interface
- initialize a Servlet,
- getServletConfig
- service(ServletRequest req, ServletResponse res)

## **7. Explain the concept of Sessions Tracking**

- Session tracking
- URL rewriting
- Cookies

### 8. Explain about Servlet Interface and Life Cycle

- Servlet Interface and Life Cycle
- Request and Response Objects

### 9. Write short notes on Concurrency in Web Servers

- Servlets And Concurrency
- Concurrency on a single-processor machine
- Single-Thread Model
- Background Processing
- Last Modified Times

## UNIT IV - PART A (2 Marks)

### 1. How to represent the XML Document?

In any markup language, the first element to appear is called the "root element", which defines what kind of document the file will be. In an HTML file, the <html> tag is the root element. An HTML file will always have the HTML element as the root element, while in an XML file, it can be anything.

**Eg:**

```
<phonebook>
<number>
</number>
<name>
</name>
</phonebook>
```

### 2. What is PCDATA in XML?

Parsed Character Data (PCDATA) is a term used about text data that will be parsed by the XML parser. XML parsers normally parse all the text in an XML document. When an XML element is parsed, the text between the XML tags is also parsed:

```
<message>This text is also parsed</message>
```

### 3. Mention any 3 XML Parsers

- SAX (Simple API for XML) Parser
- DOM (Document Object Model) Parser and
- XSLT (XML Style Sheet) Parsers.

### 4. What is the purpose of the XML DTD

The purpose of a DTD is to define the structure of an XML document. It defines the structure with a list of legal elements:

```
<!DOCTYPE note [ <!ELEMENT note (to,from,heading,body)> <!ELEMENT to (#PCDATA)>
<!ELEMENT from (#PCDATA)> <!ELEMENT heading (#PCDATA)> <!ELEMENT body
(#PCDATA)> ]>
```

## 5. What is XML Prolog

XML file always starts with a Prolog. The minimal prolog contains a declaration that identifies the document as an XML document, like this:

```
<?xml version="1.0"?>
```

The declaration may also contain additional information, like this:

```
<?xml version="1.0" encoding="ISO-8859-1" standalone="yes"?>
```

## 6. What is RSS?

- Really Simple Syndication (RSS) is a lightweight XML format designed for sharing headlines and other Web content
- RSS defines an XML grammar (a set of HTML-like tags) for sharing news. Each story is defined by an <item> tag, which contains a headline TITLE, URL, and DESCRIPTION

## 7. What is the purpose of JAXP in XML?

The Java API for XML Processing (JAXP) makes it easy to process XML data using applications written in the Java programming language. JAXP leverages the parser standards SAX (Simple API for XML Parsing) and DOM (Document Object Model) so that you can choose to parse your data as a stream of events or to build a tree-structured representation of it.

## 8. What is XSL Programming?

XSL (XML Stylesheet) Programming is the Next Generation of the CSS (Cascading Style Sheet Programming). In CSS, users can use certain style tags which the browsers can understand and are predefined by W3 consortium. XSL takes this one step ahead and users can define any tags in the XML file. XML sheets can help in showing the same data in different formats.

```
<?xml-stylesheet href="doc.xsl" type="text/xsl"?>
```

## 9. What is XSLT?

- XSLT stands for XSL Transformations
- XSLT is the most important part of XSL
- XSLT transforms an XML document into another XML document
- XSLT uses XPath to navigate in XML documents
- XSLT is a W3C Recommendation

## 10. What is Java Server Pages Technology?

- JSP is a technology, specified and introduced by Sun Microsystems.
- Create dynamic web content (HTML, XML, ...) for a Web Application.
- Make it easier/cleaner to mix static HTML parts with dynamic Java servlet code.
- JSP could make external calls to other Web components as Java Beans, Java Servlet, applets or to forward execution to another JSP document.
- Write Once, Run Anywhere

### 11. What are Java Servlets?

Servlets are Java technology's answer to CGI programming. They are programs that run on a Web server and build Web pages.

### 12. Define the term JSP EL

EL means the expression language, it is a simple language for accessing data, it makes it possible to easily access application data stored in JavaBeans components. The jsp expression language allows a page author to access a bean using simple syntax such as \$(name).

### 13. What is the purpose of MVC?

Architecture such as MVC is a design pattern that describes a recurring problem and its solution where the solution is never exactly the same for every recurrence. To use the Model-View-Controller MVC paradigm effectively you must understand the division of labor within the MVC triad.

### 14. Features of Cold Fusion

ColdFusion provides a number of additional features out of the box. Among them:

- o Simplified database access, Client and server cache management
- o Client-side code generation, especially for form widgets and validation
- o Conversion from HTML to PDF and FlashPaper

## UNIT IV - PART B (16 Marks)

### 1. Write short notes on SAX and Ajax in XML

#### Ajax

Ajax - Javascript Techniques-Updating the order.html Page-Quick Ajax Recap-AJAX

XML Example-The AJAX Server Page

#### SAX

Getting the SAX Classes and Interfaces-SAX Readers-Instantiating a Reader-Parsing the Document-Using an InputSource

### 2. How to transform XML documents to other forms

JAXP -The SAX API -The DOM API -XML Namespaces -Transforming a DOM Tree to an XML Document -Transforming an XML Document to an HTML -Document -XSL Programming-XSL COMPONENT VIEW-XSLT Input Document View

### 3. What is the main role of XPath in selecting the XML Data

WHAT IS XPATH-XPath Path Expressions-XPath Standard Functions-XPath is Used in XSLT-XPATH is a W3C Recommendation-XPath Nodes-Selecting Nodes-XPath Axes-XPath Axes-Location Path Expression-Loading the XML Document

### 4. How the template based Transformation achieved with the help of XSLT

XSL Languages-What is XSLT-XSLT Uses XPath-XSLT – Transformation-Correct Style Sheet Declaration-Create an XSL Style Sheet-Link the XSL Style Sheet to the XML Document-XSLT Functions

### **5. Explain the Basic of JSP**

JSP EL-Overview of the JSP Markup Language (JML) Tag Library-JML Tag Library -JML Tag Categories-JSP Markup Language (JML) Tag Descriptions-Bean Binding Tag Descriptions-JML useVariable Tag-JML useCookie Tag-JSTL Core Tags: General Tags

### **6. Write short notes on JavaBeans classes and JSP**

- JavaBeans Component Design Conventions
- Why Use a JavaBeans Component?
- Creating and Using a JavaBeans Component
- Setting JavaBeans Component Properties
- Retrieving JavaBeans Component Properties

### **7. In JSP Actions how the MVC Paradigm Supports.**

- MVC Overview
- MVC in Java Server Pages

### **8. Write short notes on Some of the JSP related technologies**

- JSP scriptlets-
- ASP.net vs. ASP
- PHP
- Cold fusion

## **UNIT V - PART A (2 Marks)**

### **1. What are Web Services?**

- Web services are application components
- Web services communicate using open protocols
- Web services are self-contained and self-describing
- Web services can be discovered using UDDI
- Web services can be used by other applications
- XML is the basis for Web services

### **2. What are web services platform elements?**

- SOAP (Simple Object Access Protocol)
- UDDI (Universal Description, Discovery and Integration)
- WSDL (Web Services Description Language)

### **3. What is SOAP?**

- SOAP is an XML-based protocol to let applications exchange information over HTTP.

- SOAP is language independent
- SOAP is based on XML
- SOAP is simple and extensible

#### 4. What Are Environment Variables?

Environment Variables are stored in a small area of memory available to all programs running within or on top of the DOS environment (including Windows). They are called —variables because they can be changed. In fact, some variables need to be reestablished after every reboot.

#### 5. What is ESB?

ESB (Enterprise Service Bus) is a pillar of SOA architecture technology. As a message broker architecture provides message queuing system, using terms such as SOAP or JMS (Java Message Service) and other standard technologies. Some people ESB described an open, standards-based information system, through the simple standard adapters and interfaces, to complete the coarse-grained applications (such as services) and interoperability between other components.

#### 6. What is WSDL?

WSDL is an XML-based language for locating and describing Web services.

- WSDL stands for Web Services Description Language
- WSDL is based on XML
- WSDL is used to describe Web services

#### 7. Create a simple Web Service that converts the temperature from Fahrenheit to Celsius, and vice versa:

```
<%@ WebService Language="VBScript" Class="TempConvert" %> Imports System
Imports System.Web.Services Public Class TempConvert :Inherits WebService <WebMethod()>
Public Function FahrenheitToCelsius (ByVal Fahrenheit As String) As String dim fahr
fahr=trim(replace(Fahrenheit,",",".")) if fahr="" or IsNumeric(fahr)=false then return "Error"
return (((fahr) - 32) / 9) * 5 end function <WebMethod()> Public Function CelsiusToFahrenheit
(ByVal Celsius As String) As String dim cel cel=trim(replace(Celsius,",",".")) if cel="" or
IsNumeric(cel)=false then return "Error" return (((cel) * 9) / 5) + 32 end function end class
```

#### 8. Define the XML Scheme

The purpose of an XML Schema is to define the legal building blocks of an XML document, just like a DTD. Here are some reasons:

- XML Schemas are extensible to future additions
- XML Schemas are richer and more powerful than DTDs
- XML Schemas are written in XML

#### 9. What is a Simple Element in XML?

A simple element is an XML element that can contain only text. It cannot contain any other elements or attributes

The syntax for defining a simple element is:

<xs:element name="xxx" type="yyy"/>

## 10. Write the Syntax Rules SOAP

Syntax rules:

- A SOAP message MUST be encoded using XML
- A SOAP message MUST use the SOAP Envelope namespace
- A SOAP message MUST use the SOAP Encoding namespace
- A SOAP message must NOT contain a DTD reference
- A SOAP message must NOT contain XML Processing Instructions

## UNIT V - PART B

### 1. Explain About JAX –RPC Concept

An Example Application: SunReg Web Service-A Note About Software Versions Used in This Example-Developing a Service-Coding the Service Endpoint Interface-Coding the Service Endpoint Class-Defining the Configuration File-Defining the Deployment Descriptor-Compiling the Service Deploying the Service

### 2. How to write the web service and java web service client

JAX RPC technology manages communication between a web service and client. -These are the basic steps for creating the web service and client-A service endpoint interface must conform to a few rules-Building the Service -The compile-service Task -The generate-WSDL Task -Packaging and Deploying the Service -Specifying the Endpoint Address -Deploying the Service

### 3. How to describe the Web services

- Defining Services
- Port Types and Operations
- Binding It All Together

### 4. How to represent data types in XML Schema

- Built-in datatypes
- XML schema
- User defined simple types
- User defined complex types

### 5. Explain SOAP technology for providing the communication between the data object.

What is SOAP-SOAP Syntax-Syntax Rules-Skeleton SOAP Message-SOAP Envelope Element-The encodingStyle Attribute-SOAP Header Element-SOAP Body Element-SOAP Fault Element-SOAP Fault Codes-SOAP HTTP Binding-Soap HTTP Binding-A SOAP request-The SOAP response

### 6. How to store the Java objects as Files

Object Serialization-Support for deserialization of unshared objects -Security permissions now required to override putFields, readFields -Support for class-defined readObjectNoData



method -Serialization performance enhancements -Defining serializable fields for a class  
-Serializable fields API

### **7. Write short notes on Databases and Java Servlets**

The java programming language and JDBC-JDBC 1.0-JDBC 2.0-ms access JDBC driver  
- connecting ms access with java-accessing MS access from java-connecting to MYSQL

<http://www.pdf-tools.com>