### Multiple Choice Questions (MCQs)

1. \*\*What does HTTP stand for?\*\*

- A) HyperText Transmission Protocol

- B) HyperText Transfer Protocol

- C) HyperTerminal Transfer Protocol

- D) HyperTag Transmission Protocol

- \*\*Answer\*\*: B

2. \*\*Which of the following is a component of the Client-Server Architecture?\*\*

- A) Web Browser

- B) Resource Manager

- C) Internet Service Provider

- D) HTML Parser

- \*\*Answer\*\*: B

3. \*\*In a URL, which component is typically the 'scheme'?\*\*

- A) The domain name

- B) The IP address

- C) The protocol (e.g., HTTP)

- D) The file path

- \*\*Answer\*\*: C

4. \*\*Which of the following is a unique feature of XHTML compared to HTML?\*\*

- A) XHTML tags are not case-sensitive

- B) XHTML tags must always be closed

- C) XHTML tags can have uppercase letters

- D) XHTML doesn’t require a root element

- \*\*Answer\*\*: B

5. \*\*What does XML stand for?\*\*

- A) Extra Markup Language

- B) Extendable Markup Language

- C) Extensible Markup Language

- D) External Markup Language

- \*\*Answer\*\*: C

6. \*\*Which HTTP method is typically used to submit data to a server?\*\*

- A) GET

- B) POST

- C) DELETE

- D) PUT

- \*\*Answer\*\*: B

7. \*\*What does the DOM primarily allow for in a web document?\*\*

- A) Designing page layouts

- B) Structuring data transfers

- C) Accessing and updating content dynamically

- D) Encrypting data for security

- \*\*Answer\*\*: C

8. \*\*Which of the following is a standard HTTP status code indicating a successful request?\*\*

- A) 404 Not Found

- B) 500 Internal Server Error

- C) 200 OK

- D) 403 Forbidden

- \*\*Answer\*\*: C

Here are additional multiple-choice questions based on the lecture content:

1. \*\*What does the term "stateless" mean in the context of HTTP?\*\*

- A) Server remembers all previous requests

- B) Each request is independent, with no memory of previous ones

- C) Server cannot respond to client requests

- D) Client is unaware of the server

- \*\*Answer\*\*: B

2. \*\*Which of the following best describes a Uniform Resource Locator (URL)?\*\*

- A) A unique identifier for a resource on the Internet

- B) A server configuration protocol

- C) A collection of network data packets

- D) A set of web browser settings

- \*\*Answer\*\*: A

3. \*\*Which component of the URL 'https://www.example.com:80/path?query=value#fragment' represents the 'path'?\*\*

- A) https

- B) :80

- C) /path

- D) #fragment

- \*\*Answer\*\*: C

4. \*\*What is the purpose of XML?\*\*

- A) To define the structure of web pages

- B) To carry and transport data

- C) To style web documents

- D) To create hyperlinks

- \*\*Answer\*\*: B

5. \*\*In a Client-Server model, what is the primary role of the client?\*\*

- A) Store the business logic

- B) Request resources from the server

- C) Provide data storage

- D) Manage the network

- \*\*Answer\*\*: B

6. \*\*Which HTTP request method is used to delete a resource from the server?\*\*

- A) GET

- B) POST

- C) DELETE

- D) PUT

- \*\*Answer\*\*: C

7. \*\*What is the purpose of the 'fragment' part in a URL?\*\*

- A) Identifies a specific section within a resource

- B) Directs the request to a different server

- C) Specifies additional query parameters

- D) Initiates the download of the resource

- \*\*Answer\*\*: A

8. \*\*Which HTML element is typically used to create a hyperlink?\*\*

- A) `<img>`

- B) `<p>`

- C) `<a>`

- D) `<h1>`

- \*\*Answer\*\*: C

9. \*\*What does DHTML stand for?\*\*

- A) Documented HTML

- B) Descriptive HTML

- C) Dynamic HTML

- D) Distributed HTML

- \*\*Answer\*\*: C

10. \*\*Which of the following protocols is typically used to access a website?\*\*

- A) FTP

- B) HTTP

- C) SMTP

- D) DHCP

- \*\*Answer\*\*: B

### Short Question Answers

1. \*\*Define Web Technology and list some branches of it covered in this course.\*\*

- Web Technology refers to the tools and techniques that enable the creation and management of web-based applications and websites. Some branches covered in this course include HTTP, HTML, CSS, JavaScript, and PHP.

2. \*\*What is the Client-Server model? How does it function?\*\*

- The Client-Server model is a computing architecture where a server provides resources and services to clients over a network. The client sends a request to the server, which processes the request and returns the desired resources or services.

3. \*\*Describe the three-tier Client-Server Architecture.\*\*

- The three-tier Client-Server Architecture has three levels:

1. \*\*Client\*\*: Interfaces with the user.

2. \*\*Application Server\*\*: Contains the business logic of the application.

3. \*\*Resource Manager\*\*: Manages data storage.

4. \*\*Explain the difference between the Internet and the World Wide Web (WWW).\*\*

- The Internet is a global network of interconnected computers, while the World Wide Web (WWW) is a service that operates over the Internet. The WWW allows access to linked hypertext documents, multimedia, and other resources through a web browser.

5. \*\*What is a Uniform Resource Identifier (URI), and what are its main components?\*\*

- A URI is a string of characters that uniquely identifies a resource on the Internet. Its main components are:

- \*\*Scheme\*\* (e.g., HTTP)

- \*\*Authority\*\* (e.g., domain name or IP address)

- \*\*Path\*\* (location on the server)

- \*\*Query\*\* (optional parameters)

- \*\*Fragment\*\* (points to a secondary resource).

6. \*\*List and briefly describe the HTTP Request Methods.\*\*

- \*\*GET\*\*: Requests data from a server.

- \*\*POST\*\*: Submits data to a server.

- \*\*PUT\*\*: Uploads data to a server to replace existing data.

- \*\*DELETE\*\*: Deletes specified data on a server.

7. \*\*Explain the purpose of HTML and mention some of its key tags.\*\*

- HTML, or HyperText Markup Language, defines the structure and presentation of web pages. Key tags include `<h1>` for headings, `<p>` for paragraphs, `<table>` for tables, and `<a>` for links.

8. \*\*What is the Document Object Model (DOM), and how is it structured?\*\*

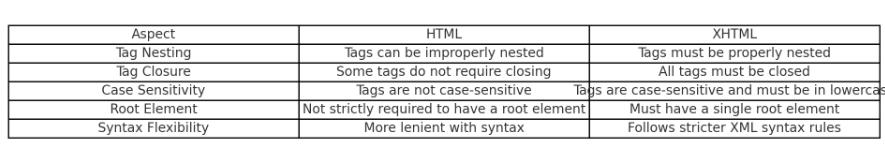
- The DOM is a programming interface for web documents, representing the structure of an HTML or XML document as a tree of objects. Each element is a node in the tree, with a parent-child hierarchy.

9. \*\*Describe the purpose of XML and mention one of its primary uses.\*\*

- XML, or eXtensible Markup Language, is designed for storing and transporting data in a format that is both human-readable and machine-readable. It is commonly used for data transmission between different systems.

10. \*\*Compare HTML and XHTML. What are the main differences?\*\*

- XHTML (eXtensible HyperText Markup Language) is stricter than HTML. Key differences include:



Sure! Here are the questions with short answers:

### 1. \*\*What are some of the main components of the HTTP protocol?\*\*

- \*\*HTTP Methods\*\* (e.g., GET, POST).

- \*\*Headers\*\* (metadata about the request/response).

- \*\*Body\*\* (data sent with the request/response).

- \*\*Status Codes\*\* (e.g., 200 OK, 404 Not Found).

### 2. \*\*Describe the term “stateless” in the context of HTTP communication.\*\*

- "Stateless" means that each HTTP request is independent, and the server does not retain information about previous requests.

### 3. \*\*Explain the process of an HTTP request and response.\*\*

- The client sends an HTTP request to the server. The server processes the request and sends back an HTTP response containing the requested data or a status code.

### 4. \*\*What is the purpose of the HTTP status codes? Give two examples.\*\*

- HTTP status codes indicate the result of an HTTP request.

- \*\*200 OK\*\*: Successful request.

- \*\*404 Not Found\*\*: The requested resource was not found.

### 5. \*\*Define a URL and explain its syntax.\*\*

- A URL (Uniform Resource Locator) is the address used to access a resource on the web.

- \*\*Syntax\*\*: `scheme://domain:port/path?query#fragment`

- Example: `https://www.example.com:80/path?name=value#section`

### 6. \*\*What role does the Domain Name System (DNS) play when accessing a webpage?\*\*

- DNS translates human-readable domain names (e.g., www.example.com) into IP addresses, allowing the browser to find and connect to the correct server.

### 7. \*\*Describe the structure of an XML document.\*\*

- An XML document is structured with nested tags:

```xml

<root>

<element>Content</element>

</root>

```

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### 8. \*\*What is the purpose of XHTML, and why was it introduced?\*\*

- XHTML (Extensible Hypertext Markup Language) is a stricter version of HTML that was introduced to enforce XML compliance and ensure better consistency across web browsers.

### 9. \*\*Explain the term "DHTML" and how it differs from HTML.\*\*

- \*\*DHTML (Dynamic HTML)\*\* refers to a combination of HTML, CSS, and JavaScript used to create interactive and dynamic web pages, while traditional HTML is static.

### 10. \*\*What are some required software and tools for developing web applications, as per the lecture content?\*\*

- \*\*Text Editor\*\* (e.g., Visual Studio Code).

- \*\*Web Browser\*\* (e.g., Chrome, Firefox).

- \*\*Server Software\*\* (e.g., Apache, Nginx).

- \*\*Version Control\*\* (e.g., Git).

- \*\*Database\*\* (e.g., MySQL, MongoDB).

Theory about what the is web and how it works including all the related concepts. - XML - HTML

### \*\*What is the Web and How It Works?\*\*

The \*\*World Wide Web (WWW)\*\* is a vast system of interconnected documents and resources, accessed through the Internet. It uses a set of protocols and technologies to allow users to access, view, and interact with content on websites.

#### \*\*How the Web Works:\*\*

1. \*\*User Requests\*\*: A user opens a web browser (like Chrome or Firefox) and types a URL (Uniform Resource Locator) into the address bar or clicks a hyperlink.

2. \*\*DNS Resolution\*\*: The browser sends the URL's domain name to the Domain Name System (DNS), which translates it into the correct IP address of the web server.

3. \*\*HTTP Request\*\*: The browser sends an \*\*HTTP\*\* (Hypertext Transfer Protocol) request to the web server asking for the requested resource (e.g., a webpage).

4. \*\*Server Response\*\*: The server processes the request, retrieves the requested file (e.g., HTML, images), and sends it back to the browser.

5. \*\*Rendering\*\*: The browser interprets the response, processes the HTML, CSS, and JavaScript, and displays the webpage on the user’s screen.

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### \*\*Related Concepts\*\*

#### \*\*1. XML (Extensible Markup Language)\*\*:

- \*\*Definition\*\*: XML is a flexible markup language used to store and transport data. Unlike HTML, which is designed for display, XML is meant for carrying data without defining how it should be displayed.

- \*\*Use\*\*: XML is often used in web services, data exchange between systems, and APIs. It defines custom tags to structure data in a hierarchical format.

- \*\*Example\*\*:

```xml

<book>

<title>Learn Web Development</title>

<author>John Doe</author>

</book>

```

#### \*\*2. HTML (HyperText Markup Language)\*\*:

- \*\*Definition\*\*: HTML is the standard markup language used to create and structure content on the web. It defines elements like headings, paragraphs, images, links, and forms.

- \*\*Use\*\*: HTML is used to structure web pages, which browsers then render as interactive documents. HTML is essential for creating the basic framework of a webpage.

- \*\*Example\*\*:

```html

<html>

<head>

<title>My Web Page</title>

</head>

<body>

<h1>Welcome to My Web Page</h1>

<p>This is a paragraph of text.</p>

<a href="https://www.example.com">Visit Example</a>

</body>

</html>

```

#### \*\*3. CSS (Cascading Style Sheets)\*\*:

- \*\*Definition\*\*: CSS is used to style and visually present HTML content. It controls layout, colors, fonts, and other visual elements of web pages.

- \*\*Example\*\*:

```css

body {

background-color: lightblue;

}

h1 {

color: darkblue;

}

```

#### \*\*4. JavaScript (ECMAScript)\*\*:

- \*\*Definition\*\*: JavaScript (often referred to as ECMAScript) is a programming language used to add interactivity to web pages. It allows dynamic changes to content and behavior without reloading the page.

- \*\*Use\*\*: JavaScript can manipulate the Document Object Model (DOM) to modify HTML and CSS dynamically.

- \*\*Example\*\*:

```javascript

document.getElementById("myButton").onclick = function() {

alert("Button clicked!");

};

```

#### \*\*5. HTTP (HyperText Transfer Protocol)\*\*:

- \*\*Definition\*\*: HTTP is the protocol used for communication between web browsers and servers. It defines how requests and responses are structured.

- \*\*Use\*\*: HTTP allows the browser to request resources (like HTML pages, images, and scripts) from a web server.

- \*\*Example\*\*: A typical HTTP request could look like this:

```

GET /index.html HTTP/1.1

Host: www.example.com

```

#### \*\*6. URL (Uniform Resource Locator)\*\*:

- \*\*Definition\*\*: A URL is the web address used to access resources on the Internet. It points to a specific location on the web, which can be a document, an image, or a video.

- \*\*Example\*\*: `https://www.example.com/index.html`

#### \*\*7. DOM (Document Object Model)\*\*:

- \*\*Definition\*\*: The DOM is a programming interface for web documents. It represents the structure of a web page as a tree of objects, allowing JavaScript to interact with HTML and CSS dynamically.

- \*\*Use\*\*: The DOM enables the manipulation of HTML and CSS, such as adding new elements or changing the content of a webpage.

- \*\*Example\*\*: Accessing and modifying an HTML element using JavaScript:

```javascript

document.getElementById("myElement").innerHTML = "New Content";

```

#### \*\*8. URI (Uniform Resource Identifier)\*\*:

- \*\*Definition\*\*: A URI is a string that uniquely identifies a resource on the web. A URL is a type of URI that provides the means to locate the resource, while a URI can also be used to refer to a resource without necessarily providing its location.

- \*\*Example\*\*: `https://www.example.com/images/pic.jpg` is a URI.

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### \*\*Summary of How the Web Works with Related Concepts\*\*:

- \*\*HTML\*\* creates the structure of a webpage.

- \*\*CSS\*\* styles it to look visually appealing.

- \*\*JavaScript\*\* adds interactivity and dynamic behavior.

- The \*\*DOM\*\* allows JavaScript to change the content and structure of the page.

- \*\*XML\*\* is used for data storage and exchange, not presentation.

- \*\*HTTP\*\* is the protocol for communication between the browser and the server.

- \*\*URI/URL\*\* are used to locate and reference resources on the web.

Each of these components works together to provide a seamless experience of browsing, interacting with, and exchanging data over the World Wide Web.