

VU Learning HUB

CS202 Quiz File

Chapter-wise Solved MCQs

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Lesson 01: Fundamentals of Front End Development

Q1. What is front-end development also known as?

- A) Server-side development
- B) Client-side development
- C) Database management
- D) Network administration

Q2. Which language is NOT listed as a core front-end language that lives in the browser?

- A) HTML
- B) CSS
- C) Python
- D) JavaScript

Q3. According to the handout, what is front-end web development explicitly NOT?

- A) Programming
- B) Design
- C) Client-side practice
- D) Interface construction

Q4. Where does the front-end developer stand in the web development process?

- A) Behind the database administrator
- B) Between the designer on one end and the back-end developer on the other
- C) Exclusively on the web server side
- D) Above the system architect

Answer Key

B) Client-side development — Front-end development is the practice of producing client-side code (HTML, CSS, JavaScript) that users see and interact with directly.

C) Python — The front-end languages that live inside your web browser are HTML, CSS, and JavaScript.

B) Design — The handout explicitly states that front-end web development is not design.

B) Between the designer on one end and the back-end developer on the other — A front-end developer bridges the gap between visual design and back-end logic.

Lesson 02: URL - Uniform Resource Locator

Q1. What does URL stand for?

- A) Universal Resource Link
- B) Uniform Resource Locator
- C) Unified Resource Label
- D) Uniform Relay Location

Q2. A URL is one specific type of which broader web identifier?

- A) Uniform Resource Identifier (URI)
- B) Universal Resource Index (URI)
- C) Unified Request Interface (URI)
- D) Unique Resource Indicator (URI)

Q3. What is the first part (http://) of the URL `http://mydomain.com/myresource.html` called?

- A) Resource location name
- B) Protocol identifier
- C) Path name
- D) Domain host

Q4. How does URL encoding handle unsafe space characters in a URL?

- A) Replaces them with a hyphen (-)
- B) Replaces them with a plus (+) sign or %20
- C) Replaces them with an underscore (_)
- D) Deletes the space completely

Answer Key

- B) Uniform Resource Locator — URL stands for Uniform Resource Locator, which is the global address of web documents.
- A) Uniform Resource Identifier (URI) — URI is the generic term for names and addresses referring to objects on the web, of which URL is one type.
- B) Protocol identifier — The first part indicates which protocol identifier to use (e.g., HTTP or HTTPS).
- B) Replaces them with a plus (+) sign or %20 — URLs cannot contain spaces, so URL encoding replaces spaces with + or %20.

Lesson 03: HTTP Basics

Q1. What does HTTP stand for?

- A) Hypertext Transfer Protocol
- B) High Transfer Text Program
- C) Hyperlink Text Process
- D) Hosted Terminal Protocol

Q2. Which HTTP request method submits data to be processed, has no length limit, and is never cached?

- A) GET
- B) POST
- C) PUT
- D) DELETE

Q3. What is a defining characteristic of the HTTP GET method?

- A) It has no data length limit
- B) It is never cached
- C) It requests data from a specified resource, has limited length, and can be cached
- D) It encrypts all user inputs

Q4. What protocol/technology is used in HTTPS to encrypt and authenticate client-server communication?

- A) XML
- B) SSL (Secure Sockets Layer)
- C) FTP
- D) ASCII encoding

Answer Key

A) Hypertext Transfer Protocol — HTTP is an application-level request-response protocol between clients and servers.

B) POST — POST submits data to a resource, has no length restriction, and is never cached by the client.

C) It requests data from a specified resource, has limited length, and can be cached — GET is designed for fetching data and can be cached.

B) SSL (Secure Sockets Layer) — HTTPS is HTTP over SSL, encrypting and authenticating all communications.

Lesson 04: Web Server, Services and Agents

Q1. What program uses HTTP to serve web page files to users in response to client requests?

- A) Web Server
- B) FTP Client
- C) Domain Registrar
- D) Database Engine

Q2. What software framework provides both facilities to create web applications and an environment to run them?

- A) User Agent
- B) Application Server
- C) Web Browser
- D) Search Engine

Q3. What markup language do Web Services typically use to communicate messages over HTTP?

- A) JSON
- B) XML
- C) HTML4
- D) SQL

Q4. What is a typical example of a Web Agent / User Agent application?

- A) Web Browser
- B) Application Server
- C) Database Management System
- D) Router Firmware

Answer Key

A) Web Server — A Web server serves web files over HTTP in response to client requests.

B) Application Server — Application servers supply the environment and platform API components to build and run web applications.

B) XML — Web Services reside on a Web Server and typically use XML for messaging.

A) Web Browser — Software applications used by individuals to retrieve resources from web servers are user agents (e.g., browsers).

Lesson 05: Domain, Hosting, FTP

Q1. What is a domain name mapped to on the Internet?

- A) An email address

- B) An IP address
- C) A physical MAC address
- D) A database record key

Q2. What system translates domain names to destination server addresses?

- A) Domain Name System (DNS)
- B) Dynamic Network Server (DNS)
- C) Digital Name Structure (DNS)
- D) Data Node Selector (DNS)

Q3. Which protocol is standardly used to upload and transfer files to a web host server?

- A) HTTP
- B) FTP
- C) HTTPS
- D) SMTP

Q4. Which of the following represents a valid domain name example from the handout?

- A) http://google.com/index
- B) facebook.com
- C) ftp://mydomain.com
- D) 192.168.1.1

Answer Key

- B) An IP address — Domain names are mapped to IP addresses representing physical points on the Internet.
- A) Domain Name System (DNS) — DNS servers use the Domain Name System to forward web requests.
- B) FTP — File Transfer Protocol (FTP) is used for uploading website files to web hosting storage.
- B) facebook.com — facebook.com is listed as a unique domain name example.

Lesson 08: Elements and Attributes

Q1. All HTML documents must start with which declaration?

- A) <html>
- B) <!DOCTYPE html>
- C) <head>
- D) <meta charset="UTF-8">

Q2. What are HTML elements with no text content or closing tag called?

- A) Closed elements
- B) Empty elements
- C) Void blocks
- D) Null elements

Q3. Where must HTML attributes always be specified?

- A) In the closing tag
- B) In the start tag
- C) Inside external CSS files
- D) In the <head> section only

Q4. Which attribute specifies alternative text for an image if it fails to load or for screen readers?

- A) src
- B) title
- C) alt
- D) href

Answer Key

- B) `<!DOCTYPE html>` — Every HTML document must begin with a `<!DOCTYPE html>` type declaration.
- B) Empty elements — Elements without content (such as `<br>`) are called empty elements.
- B) In the start tag — Attributes provide extra information and are always written in the start tag in `name="value"` pairs.
- C) alt — The alt attribute provides descriptive text for screen readers or broken image links.

Lesson 09: Heading and Paragraph

Q1. Which HTML heading tag defines the most important heading?

- A) `<h6>`
- B) `<h1>`
- C) `<head>`
- D) `<header>`

Q2. Why should HTML heading tags be used according to the handout?

- A) To make text BIG or bold
- B) To show document structure and help search engines index content
- C) To change font colors automatically
- D) To insert section margins

Q3. How does a web browser handle extra spaces and empty lines inside HTML paragraphs?

- A) Displays every extra space exactly as written
- B) Collapses any number of spaces and new lines into a single space
- C) Throws a syntax error
- D) Automatically inserts `<br>` tags

Q4. Which tag inserts a line break without starting a new paragraph block?

- A) `<p>`
- B) `<br>`
- C) `<hr>`
- D) `<div>`

Answer Key

- B) `<h1>` — `<h1>` defines the most important heading, while `<h6>` defines the least important.
- B) To show document structure and help search engines index content — Headings reflect structure; search engines skim headings to index web pages.
- B) Collapses any number of spaces and new lines into a single space — Browsers strip extra whitespace and render multiple spaces/newlines as one space.
- B) `<br>` — The `<br>` element inserts an inline line break.

Lesson 10: HTML Styling and Formatting

Q1. What is the correct syntax for inline HTML styling using the style attribute?

- A) style="property:value"
- B) style="property=value"
- C) style={property:value}
- D) style(property->value)

Q2. Which property inside the style attribute sets horizontal text alignment?

- A) font-align
- B) text-align
- C) align-content
- D) horizontal-align

Q3. What is the semantic difference between and tags?

- A) adds semantic importance, while is purely visual
- B) defines bold text without extra importance, while defines important text
- C) Both tags are deprecated in HTML5
- D) can only be used inside headings

Q4. Which tag defines deleted (struck-through) text in HTML?

- A) <sub>
- B) <small>
- C) <del>
- D) <mark>

Answer Key

- A) style="property:value" — The HTML inline style attribute uses the property:value syntax.
- B) text-align — text-align specifies left, right, center, or justified text alignment.
- B) defines bold text without extra importance, while defines important text — is structural formatting, whereas conveys semantic weight.
- C) <del> — The <del> tag represents deleted or removed text.

Lesson 11: HTML Quotations

Q1. Which tag defines a short inline quotation where browsers automatically insert quote marks?

- A) <blockquote>
- B) <q>
- C) <cite>
- D) <abbr>

Q2. How do web browsers usually render the <blockquote> element?

- A) In bold red font
- B) Indented as a standalone quoted block
- C) Centered with underline
- D) In uppercase letters

Q3. Which HTML element defines contact information for the author or owner of an article?

- A) <address>
- B) <title>
- C) <meta>
- D) <bdo>

Q4. What does the <bdo> element do?

- A) Aligns blocks vertically
- B) Overrides text direction (Bi-Directional Override, e.g., right-to-left)
- C) Formats data in bold outline
- D) Links to database objects

Answer Key

- B) <q> — The <q> tag defines short inline quotations and adds quote marks.
- B) Indented as a standalone quoted block — <blockquote> is used for long quotes, which browsers indent.
- A) <address> — <address> holds author/owner contact details and renders in italics.
- B) Overrides text direction (Bi-Directional Override, e.g., right-to-left) — <bdo dir="rtl"> overrides the default text direction.

Lesson 12: HTML Computer Code

Q1. Which HTML tag specifies keyboard input formatting?

- A) <code>
- B) <samp>
- C) <kbd>
- D) <var>

Q2. What type of content is defined by the <samp> tag?

- A) Computer output
- B) Programming code
- C) Mathematical variables
- D) Keyboard shortcuts

Q3. What does the <var> element define in computer code formatting?

- A) A JavaScript keyword
- B) A mathematical or programming variable
- C) A CSS property
- D) An environment variable

Q4. What typographic font characteristic is shared by <kbd>, <samp>, and <code> tags?

- A) Variable letter spacing
- B) Fixed letter size and spacing (monospaced)
- C) Underlined text
- D) Sans-serif italic font

Answer Key

- C) <kbd> — The <kbd> element represents user keyboard inputs like <kbd>File | Open...</kbd>.
- A) Computer output — <samp> is designated for sample output from a computer program.

B) A mathematical or programming variable — The `<var>` element defines variables in code or math expressions.

B) Fixed letter size and spacing (monospaced) — Code elements use monospaced fonts to preserve alignment.

Lesson 14: HTML Links

Q1. Which HTML tag defines a hyperlink?

- A) `<link>`
- B) `<a>`
- C) `<href>`
- D) `<url>`

Q2. Which attribute specifies the destination URL address of an `<a>` link?

- A) `src`
- B) `href`
- C) `target`
- D) `rel`

Q3. How do you construct an inline link to jump to an element with `id="tips"` on the same page?

- A) `<a href="tips">`
- B) `<a href="#tips">`
- C) `<a href="@tips">`
- D) `<a link="tips">`

Q4. Which attribute value opens a clicked hyperlink in a new browser tab or window?

- A) `target="_self"`
- B) `target="_blank"`
- C) `target="_new"`
- D) `target="_top"`

Answer Key

B) `<a>` — Hyperlinks are created using the `<a>` (anchor) tag.

B) `href` — The `href` attribute defines the destination address of the link.

B) `<a href="#tips">` — Using `#` followed by the element ID creates an bookmark link on the page.

B) `target="_blank"` — Setting `target="_blank"` forces the link to open in a new tab or window.

Lesson 15: HTML Images

Q1. Which tag embeds an image into an HTML document?

- A) `<image>`
- B) `<img>`
- C) `<pic>`
- D) `<photo>`

Q2. Why is the `<img>` tag categorized as an empty tag?

- A) It contains attributes only and has no closing tag
- B) It cannot accept styling attributes
- C) It displays transparent pixels by default

D) It must be placed inside a <div>

Q3. Which attribute specifies the file location URL of the image?

- A) alt
- B) href
- C) src
- D) path

Q4. How are image dimensions (width and height) provided on the element in HTML?

- A) As child tags
- B) As element attributes
- C) In external script files
- D) As URL query strings

Answer Key

- B) — HTML images are defined with the tag.
- A) It contains attributes only and has no closing tag — is an empty element holding only attribute pairs.
- C) src — src holds the web address/URL path to the image file.
- B) As element attributes — Image dimensions are specified as width="104" and height="142" attributes.

Lesson 16b: HTML Tables Handling

Q1. Which tag defines a row in an HTML table?

- A) <table>
- B) <tr>
- C) <td>
- D) <th>

Q2. Which tag defines standard data cells inside a table row?

- A) <th>
- B) <td>
- C) <tr>
- D) <cell>

Q3. Which attribute allows a table cell to span across multiple columns?

- A) rowspan
- B) colspan
- C) column-span
- D) cellspan

Q4. Which attribute allows a table cell to span across multiple rows?

- A) colspan
- B) rowspan
- C) row-extend
- D) multirow

Answer Key

- B) <tr> — Tables are divided into table rows using the <tr> tag.
- B) <td> — <td> defines standard table data cells.

B) colspan — The colspan attribute stretches a cell across multiple columns.

B) rowspan — The rowspan attribute stretches a cell across multiple vertical rows.

Lesson 17: HTML List

Q1. Which tag opens an unordered (bulleted) list in HTML?

- A)
- B)
- C)
- D) <dl>

Q2. Which type of list marks item entries with numbers or letters?

- A) Unordered list ()
- B) Ordered list ()
- C) Description list (<dl>)
- D) Horizontal list

Q3. In a description list (<dl>), which tag defines the description/definition of a term?

- A) <dt>
- B) <dd>
- C)
- D) <desc>

Q4. Which CSS property value on ul#menu li formats a list to display horizontally?

- A) display: block
- B) display: inline
- C) display: table-row
- D) display: grid

Answer Key

B) — Unordered HTML lists start with and list items with .

B) Ordered list () — Ordered lists () mark items sequentially using numbers or letters.

B) <dd> — <dt> defines the term name, while <dd> defines the term's description data.

B) display: inline — Setting display: inline on items places list elements on a single horizontal line.

Lesson 18: HTML Blocks

Q1. What is a primary behavior of block-level elements in HTML?

- A) They always start and end with a new line in the browser
- B) They sit inline without breaking text flow
- C) They cannot contain other HTML elements
- D) They only store numerical data

Q2. Which of the following is an inline element?

- A) <div>
- B) <p>
- C)
- D) <table>

Q3. Which block-level element acts as a generic container for grouping HTML elements?

- A) `<span>`
- B) `<div>`
- C) `<a>`
- D) `<b>`

Q4. How does `<span>` differ from `<div>`?

- A) `<span>` inserts automatic line breaks
- B) `<span>` is an inline container with no line breaks
- C) `<span>` requires a mandatory `src` attribute
- D) `<span>` cannot be styled with CSS

Answer Key

- A) They always start and end with a new line in the browser — Block-level elements take up the full width available, starting on a new line.
- C) `<span>` — `<span>`, `<b>`, `<a>`, and `<img>` are inline elements.
- B) `<div>` — `<div>` is a generic block-level container used to group and style section content.
- B) `<span>` is an inline container with no line breaks — Unlike `<div>`, `<span>` is an inline wrapper used for inline text styling.

Lesson 19: HTML Layout

Q1. What is the fundamental purpose of HTML layout?

- A) To execute database migrations
- B) To establish the basic structure and arrangement of web page content
- C) To style font families
- D) To handle form validation

Q2. In traditional `<div>`-based layouts, which id is standardly assigned to top banner headings?

- A) `id="section"`
- B) `id="header"`
- C) `id="footer"`
- D) `id="nav"`

Q3. Which CSS float property was traditionally used on `#nav` and `#section` containers to place them side-by-side?

- A) `float: center`
- B) `float: left`
- C) `float: top`
- D) `float: clear`

Q4. Which container in a layout typically holds copyright notices at the page bottom?

- A) `#header`
- B) `#nav`
- C) `#footer`
- D) `#aside`

Answer Key

B) To establish the basic structure and arrangement of web page content — Layout defines structural arrangements using HTML container tags.

B) id="header" — <div id="header"> is standard for top banner titles.

B) float: left — Setting float: left allows sidebar navigation and content sections to sit side-by-side.

C) #footer — <div id="footer"> is placed at the bottom for copyright and contact links.

Lesson 21: HTML Forms

Q1. Which tag defines an HTML form used to collect user input?

- A) <input>
- B) <form>
- C) <fieldset>
- D) <label>

Q2. Which element is considered the most important form element?

- A) <select>
- B) <input>
- C) <textarea>
- D) <button>

Q3. Which element is used to group related input fields inside a form?

- A) <legend>
- B) <fieldset>
- C) <div>
- D) <optgroup>

Q4. What tag defines a caption title for a <fieldset> element?

- A) <label>
- B) <legend>
- C) <caption>
- D) <title>

Answer Key

B) <form> — The <form> tag encapsulates interactive form controls.

B) <input> — <input> is the primary form element and varies depending on its type attribute.

B) <fieldset> — <fieldset> draws a box around related form controls.

B) <legend> — The <legend> tag specifies a caption header for a <fieldset> group.

Lesson 24: HTML Entities and Symbols

Q1. Why are character entities necessary in HTML documents?

- A) To run background scripts
- B) To display reserved characters (like < or >) without tag parsing errors
- C) To compress image files
- D) To create external links

Q2. If no entity name exists for a character, what can be used as a fallback?

- A) An entity number (decimal or hexadecimal)

- B) A URL link
- C) A CSS class name
- D) A JavaScript string function

Q3. What is the entity name for the euro currency symbol (€)?

- A) $
- B) €
- C) £
- D) ¥

Q4. What character entity represents the "FOR ALL" ($\forall$) mathematical symbol?

- A) ∀
- B) ∂
- C) ∃
- D) ∅

Answer Key

B) To display reserved characters (like < or >) without tag parsing errors — Entities prevent browsers from mistaking reserved symbols for HTML tags.

A) An entity number (decimal or hexadecimal) — Entity decimal/hex numbers serve as fallback references.

B) € — € (or €) renders the € symbol.

A) ∀ — ∀ (or ∀) represents the universal quantifier $\forall$.

Lesson 30: CSS Selectors

Q1. What is the role of CSS selectors?

- A) To send HTTP GET requests
- B) To target and select specific HTML element(s) to apply styles to
- C) To parse XML nodes
- D) To execute database queries

Q2. How do you select all elements with class="intro" in CSS?

- A) #intro
- B) .intro
- C) *intro
- D) element(intro)

Q3. How do you select a single unique element with id="firstname" in CSS?

- A) .firstname
- B) #firstname
- C) id.firstname
- D) *firstname

Q4. What elements are selected by div > p?

- A) All <p> elements anywhere inside a <div>
- B) All <p> elements where the direct parent is a <div>
- C) Every <div> preceded by a <p>
- D) <div> elements with paragraph classes

Answer Key

- B) To target and select specific HTML element(s) to apply styles to — CSS selectors define patterns to match and style HTML elements.
- B) .intro — The period (.) targets elements by class name.
- B) #firstname — The hash (#) targets elements by unique ID.
- B) All <p> elements where the direct parent is a <div> — The > combinator targets direct child elements.

Lesson 38: CSS Box Model

Q1. What four layers compose the CSS Box Model?

- A) Font, color, text-align, line-height
- B) Content, padding, border, margin
- C) Header, nav, section, footer
- D) Width, height, float, clear

Q2. Which layer of the Box Model holds the actual text and images?

- A) Margin
- B) Border
- C) Padding
- D) Content

Q3. Where is padding located in the Box Model structure?

- A) Outside the margin
- B) Around the content, inside the border
- C) Outside the border
- D) On top of the outline

Q4. Does an element's CSS outline affect its calculated layout dimensions (width and height)?

- A) Yes, it adds to width and height
- B) No, the outline is drawn outside dimensions and does not affect total width/height
- C) Only if padding is zero
- D) Only in table cells

Answer Key

- B) Content, padding, border, margin — Every HTML box model consists of content, surrounding padding, a border, and outer margin.
- D) Content — Content is the innermost box containing text/media.
- B) Around the content, inside the border — Padding clears space directly between content and border.
- B) No, the outline is drawn outside dimensions and does not affect total width/height — An outline is drawn outside borders without altering element dimensions.

Lesson 46: CSS Class

Q1. What prefix character defines a class selector in CSS code?

- A) Hash (#)
- B) Period (.)
- C) At sign (@)
- D) Exclamation mark (!)

Q2. What constraint must be followed when naming a CSS class?

- A) Must start with a digit
- B) Do NOT start a class name with a number
- C) Must be all uppercase letters
- D) Cannot contain numbers

Q3. What does p.imp select in CSS?

- A) All elements with class="imp"
- B) Only <p> elements that have class="imp"
- C) Paragraphs inside #imp
- D) Every paragraph except imp

Q4. Can the same class attribute be reused across multiple HTML elements on a page?

- A) No, classes are unique per page
- B) Yes, class selectors can be applied to multiple elements (<div>, , <p>)
- C) Only if they share the same ID
- D) Only inside forms

Answer Key

- B) Period (.) — Class selectors begin with a period (.class).
- B) Do NOT start a class name with a number — Class names can contain alphanumeric characters but must not start with a digit.
- B) Only <p> elements that have class="imp" — Combining tag and class limits the style to specified tags.
- B) Yes, class selectors can be applied to multiple elements (<div>, , <p>) — Classes are designed for reusable styling across elements.

Lesson 51: CSS Attribute Selectors

Q1. Which selector selects elements with an attribute value containing a specified space-separated word?

- A) [attribute=value]
- B) [attribute~value]
- C) [attribute|=value]
- D) [attribute^=value]

Q2. Which selector selects elements whose attribute value begins with a specified prefix?

- A) [attribute\$=value]
- B) [attribute*=value]
- C) [attribute^=value]
- D) [attribute~value]

Q3. Which selector selects elements whose attribute value ends with a specified string?

- A) [attribute\$=value]
- B) [attribute^=value]
- C) [attribute|=value]
- D) [attribute*=value]

Q4. Which selector selects elements whose attribute value contains a specified substring anywhere within it?

- A) [attribute]=value]
- B) [attribute*=value]
- C) [attribute^=value]
- D) [attribute=value]

Answer Key

- B) [attribute~=value] — [title~="flower"] selects elements with a space-separated word list containing "flower".
- C) [attribute^=value] — The ^= symbol matches attributes starting with the given value.
- A) [attribute\$=value] — The \$= symbol matches attributes ending with the specified value.
- B) [attribute*=value] — The *= wildcard matches any substring occurrence.

Lesson 53: JavaScript Syntax

Q1. What character encoding set does JavaScript use?

- A) ASCII only
- B) Unicode character set
- C) UTF-16 only
- D) ISO-8859-1

Q2. How does camel case naming standardly start in JavaScript variable identifiers?

- A) With an uppercase letter
- B) With a lowercase letter
- C) With a digit
- D) With an underscore

Q3. What are individual program instructions called in JavaScript?

- A) Comments
- B) Statements
- C) Attributes
- D) Protocols

Q4. How is JavaScript characterized in the handout?

- A) A heavy compiled language
- B) A small and lightweight programming language of HTML and the Web
- C) A server hardware interface
- D) An offline database system

Answer Key

- B) Unicode character set — JavaScript uses Unicode, covering almost all global characters and symbols.
- B) With a lowercase letter — JavaScript camel case traditionally starts lowercase (e.g., firstName).
- B) Statements — JavaScript program instructions are called statements.
- B) A small and lightweight programming language of HTML and the Web — JavaScript is lightweight and easy to integrate with HTML.

Lesson 54: JavaScript Statements

Q1. In what order are JavaScript statements executed by web browsers?

- A) In random order

- B) One by one, in the order they are written
- C) In reverse order
- D) Sorted alphabetically

Q2. How do you write a single-line comment in JavaScript?

- A) `<!-- Comment -->`
- B) `// Comment`
- C) `/* Comment */`
- D) `# Comment`

Q3. How are multi-line comments opened and closed in JavaScript?

- A) Between `//` and `//`
- B) Between `/*` and `*/`
- C) Between `<!--` and `-->`
- D) Inside brackets `[ ]`

Q4. Why are code lines sometimes commented out during testing?

- A) To accelerate execution speed
- B) To prevent code line execution
- C) To make variables global
- D) To clear browser cache

Answer Key

- B) One by one, in the order they are written — Browsers execute statements sequentially from top to bottom.
- B) `// Comment` — Prefixing a line with `//` turns it into a comment.
- B) Between `/*` and `*/` — Multi-line comments start with `/*` and end with `*/`.
- B) To prevent code line execution — Adding `//` turns executable code lines into comments for debugging.

Lesson 56a: JavaScript Variables & Operators

Q1. What are JavaScript variables?

- A) Hardware addresses
- B) Containers for storing data values
- C) Formatting tags
- D) Database keys

Q2. Which rule governs valid JavaScript variable identifiers?

- A) Can begin with digits
- B) Can contain letters, digits, underscores, and dollar signs
- C) Can use reserved keyword names
- D) Are case-insensitive

Q3. Are JavaScript variable names case-sensitive?

- A) No, `y` and `Y` refer to the same variable
- B) Yes, `y` and `Y` are distinct variables
- C) Only inside functions
- D) Only when declared with `var`

Q4. What operation does the single equal sign (`=`) perform in JavaScript?

- A) Equality comparison
- B) Value assignment
- C) Type conversion
- D) Logical matching

Answer Key

- B) Containers for storing data values — Variables store data values (e.g., `var x = 5;`).
- B) Can contain letters, digits, underscores, and dollar signs — Identifiers can include letters, digits, `_`, and `$`, but must start with a letter, `$`, or `_`.
- B) Yes, `y` and `Y` are distinct variables — Variable names are case-sensitive.
- B) Value assignment — The `=` sign assigns values to variables, unlike algebra.

Lesson 58: JavaScript Objects

Q1. What are JavaScript objects containers for?

- A) HTML tags only
- B) Named values called properties and methods
- C) CSS style sheets
- D) Server routes

Q2. What is an object method in JavaScript?

- A) A primitive string
- B) A property holding a function definition
- C) A numeric constant
- D) An external file reference

Q3. What types of values can object properties hold?

- A) Primitive values, other objects, and functions
- B) Integers only
- C) Strings only
- D) HTML markup only

Q4. How are object properties and methods defined?

- A) As named container values
- B) As SQL tables
- C) As HTTP headers
- D) As system registry keys

Answer Key

- B) Named values called properties and methods — Objects store collections of named properties and methods.
- B) A property holding a function definition — Methods are object properties storing function code.
- A) Primitive values, other objects, and functions — Object properties can hold data primitives, nested objects, or functions.
- A) As named container values — Objects act as structured containers for named property key-value pairs.

Lesson 59: JavaScript Scope

Q1. What is scope in JavaScript?

- A) Browser window height
- B) The set of variables, objects, and functions you have access to
- C) Code compilation time
- D) HTML DOM depth

Q2. What type of scope behavior does JavaScript exhibit?

- A) Global-only scope
- B) Function scope (scope changes inside functions)
- C) Block-only scope
- D) Class-only scope

Q3. What accessibility do variables declared inside a function have?

- A) They are globally accessible
- B) They become local to that function
- C) They are accessible across windows
- D) They become system constants

Q4. Which default object do global variables belong to in a browser?

- A) document object
- B) window object
- C) Math object
- D) Form object

Answer Key

B) The set of variables, objects, and functions you have access to — Scope defines variable visibility and accessibility.

B) Function scope (scope changes inside functions) — JavaScript uses function scope where new functions create new scope boundaries.

B) They become local to that function — Variables defined inside a function cannot be accessed outside it.

B) window object — Global variables automatically become properties of the browser window object.

Lesson 60: JavaScript Events

Q1. How does JavaScript interact with HTML pages?

- A) Through scheduled cron jobs
- B) Through events triggered by users or browsers manipulating pages
- C) Through SQL triggers
- D) Through CSS keyframe steps

Q2. Which of the following is an example of an HTML event?

- A) An HTML page finishes loading
- B) An input field is changed
- C) A button is clicked
- D) All of the above

Q3. Which event attribute triggers JavaScript execution when a button is clicked?

- A) onhover
- B) onclick

- C) onchange
- D) onload

Q4. Can event handler attributes contain inline JavaScript code?

- A) No, scripts must be external
- B) Yes, HTML allows event handler attributes with JavaScript code
- C) Only when compiled
- D) Only in HTML4

Answer Key

- B) Through events triggered by users or browsers manipulating pages — Interaction relies on event detection (clicks, loads, keypresses).
- D) All of the above — Page load, input change, and button click are all standard HTML events.
- B) onclick — onclick="code" executes JavaScript upon button click.
- B) Yes, HTML allows event handler attributes with JavaScript code — Event handler attributes allow direct inline script execution.

Lesson 68: JavaScript Arrays

Q1. How do you access an element in a JavaScript array?

- A) By text key name
- B) By zero-based index number (array)
- C) By element tag
- D) By memory address

Q2. What data type string does typeof return for a JavaScript array?

- A) "array"
- B) "object"
- C) "list"
- D) "undefined"

Q3. Does JavaScript support associative arrays with named string indexes?

- A) Yes, fully supported
- B) No, JavaScript arrays use numbered indexes only
- C) Only when using new Array()
- D) Only in JSON files

Q4. Which method removes the first element from an array and shifts remaining elements up?

- A) pop()
- B) shift()
- C) push()
- D) slice()

Answer Key

- B) By zero-based index number (array) — Array elements are accessed using zero-indexed positions.
- B) "object" — Arrays are special objects in JavaScript, so typeof returns "object".
- B) No, JavaScript arrays use numbered indexes only — JavaScript does not support named index associative arrays; arrays use numbers.

B) shift() — shift() removes the zero-index item and shifts remaining elements left.

Lesson 76: JavaScript Break and Continue

Q1. What does the break statement do inside a loop?

- A) Skips the current iteration
- B) Jumps out of the loop completely
- C) Restarts the loop counter
- D) Throws an error

Q2. What does the continue statement do inside a loop?

- A) Stops the entire script
- B) Skips one current iteration and proceeds to the next
- C) Resets variables
- D) Exits the enclosing function

Q3. In a loop for (i=0; i<10; i++), if (i===3) break; executes, what is the last value processed?

- A) 2
- B) 3
- C) 4
- D) 9

Q4. Besides loops, where else is break commonly used to exit code blocks?

- A) if statements
- B) switch() statements
- C) try/catch blocks
- D) Function declarations

Answer Key

B) Jumps out of the loop completely — break breaks out of the loop execution entirely.

B) Skips one current iteration and proceeds to the next — continue skips the remainder of the current loop step.

A) 2 — When i reaches 3, break terminates the loop before printing 3.

B) switch() statements — break is used in switch() cases to prevent fall-through.

Lesson 77: JavaScript Data Type

Q1. How many data types in JavaScript can contain values according to the handout?

- A) 3
- B) 5 (String, Number, Boolean, Object, Function)
- C) 8
- D) 10

Q2. Which two JavaScript data types cannot contain values?

- A) String and Number
- B) null and undefined
- C) Object and Array
- D) Boolean and Function

Q3. What does typeof NaN return in JavaScript?

- A) "NaN"
- B) "number"
- C) "undefined"
- D) "object"

Q4. What does typeof null return in JavaScript?

- A) "null"
- B) "object"
- C) "undefined"
- D) "boolean"

Answer Key

- B) 5 (String, Number, Boolean, Object, Function) — The 5 value-containing types are String, Number, Boolean, Object, Function.
- B) null and undefined — null and undefined are value-less data types.
- B) "number" — In JavaScript, NaN (Not a Number) is classified as a number type.
- B) "object" — typeof null returns "object", which is a historical behavior in JavaScript.

Lesson 80: JavaScript Hoisting

Q1. What is hoisting in JavaScript?

- A) Compiling scripts to binary
- B) JavaScript's default behavior of moving variable/function declarations to the top of scope
- C) Uploading files to web host servers
- D) Serializing objects to strings

Q2. Does JavaScript hoist initializations along with declarations?

- A) Yes, both are hoisted
- B) No, JavaScript only hoists declarations, not initializations
- C) Only when using var inside loops
- D) Only inside global scope

Q3. In the sequence `x = 5; elem.innerHTML = x; var x;`, what value is rendered for x?

- A) undefined
- B) 5
- C) NaN
- D) ReferenceError

Q4. What coding practice is recommended to prevent hoisting-related bugs?

- A) Avoid declaring variables
- B) Always declare all variables at the beginning of every scope
- C) Initialize variables at the end of functions
- D) Omit var keywords

Answer Key

- B) JavaScript's default behavior of moving variable/function declarations to the top of scope — Hoisting lifts declarations to top of scope prior to execution.
- B) No, JavaScript only hoists declarations, not initializations — Initializations stay in place; only declarations are hoisted.

- B) 5 — Because var x; declaration is hoisted to top, assigning x = 5; assigns 5 correctly.
- B) Always declare all variables at the beginning of every scope — Declaring variables at top avoids unexpected hoisting bugs.

Lesson 81: JavaScript Error Handling

Q1. Which JavaScript statement tests a block of code for errors?

- A) try
- B) catch
- C) throw
- D) finally

Q2. Which statement creates a custom exception/error?

- A) error
- B) throw
- C) reject
- D) break

Q3. Which block executes code after try and catch regardless of error outcome?

- A) then
- B) finally
- C) always
- D) end

Q4. What often happens when JavaScript code encounters errors in a browser without debugging tools open?

- A) A pop-up alert appears
- B) Nothing happens and no error messages appear on screen
- C) The browser window closes
- D) Page text turns red

Answer Key

- A) try — The try statement marks a block of statements to test for errors.
- B) throw — The throw statement throws user-defined custom exceptions.
- B) finally — Code in a finally block runs after try/catch completes.
- B) Nothing happens and no error messages appear on screen — Uncaught JavaScript errors fail silently without user alerts unless consoles are active.

Lesson 83a: JavaScript Best Practices

Q1. Why should developers minimize the use of global variables?

- A) They increase script file size
- B) Global variables can be overwritten by other scripts
- C) They break HTML markup
- D) They are disallowed in HTML5

Q2. Why is initializing variables upon declaration considered good practice?

- A) Produces cleaner code, provides a single place to initialize, and avoids undefined values
- B) Automatically syncs data to server

- C) Converts variables to global scope
- D) Disables variable hoisting

Q3. Why should primitive types NOT be declared as objects (new String())?

- A) Objects execute faster
- B) Declaring primitives as objects slows down execution and produces nasty side effects in comparisons
- C) Primitive objects cannot store text
- D) Browsers reject object declarations

Q4. What is the result of evaluating ("John" === new String("John"))?

- A) true
- B) false
- C) undefined
- D) NaN

Answer Key

B) Global variables can be overwritten by other scripts — Global variables risk name collisions and accidental overwriting.

A) Produces cleaner code, provides a single place to initialize, and avoids undefined values — Initializing variables avoids uninitialized undefined bugs.

B) Declaring primitives as objects slows down execution and produces nasty side effects in comparisons — Object wrappers add overhead and cause strict comparison (===) failures.

B) false — Strict equality checks both value and type; a primitive string does not equal a String object.

Lesson 90: JavaScript and Forms

Q1. How can JavaScript access form field values using DOM object naming?

- A) document.forms["myForm"]["fieldname"].value
- B) window.getForm("myForm")
- C) server.fetch("myForm")
- D) CSS.select("myForm")

Q2. What is form data validation?

- A) Saving inputs into SQL tables
- B) The process of ensuring user input is clean, correct, and useful
- C) Compiling JavaScript into CSS
- D) Centering form text fields

Q3. Where is client-side form validation executed?

- A) On a remote web server after submission
- B) In the user's web browser before sending data to the web server
- C) In the DNS server
- D) Inside database triggers

Q4. What value should a client-side validation function return to stop form submission when input is invalid?

- A) true
- B) false
- C) null

D) 0

Answer Key

- A) `document.forms["myForm"]["fieldname"].value` — The HTML DOM forms collection accesses form fields by name or ID.
- B) The process of ensuring user input is clean, correct, and useful — Validation ensures correct data formatting before application processing.
- B) In the user's web browser before sending data to the web server — Client-side validation runs locally in the browser.
- B) false — Returning false from a form submission event prevents data transmission.

Lesson 112: XML Usage

Q1. What does XML stand for?

- A) Extensible Markup Language
- B) Extended Media Link
- C) Executable Markup Logic
- D) External Module Language

Q2. What is a primary role of XML in web development?

- A) Styling page layouts and background colors
- B) Separating data from presentation
- C) Executing browser animations
- D) Indexing CSS stylesheets

Q3. Does XML contain built-in information on how data should be displayed?

- A) Yes, XML contains display tags like `<b>`
- B) No, XML does not carry any information about how to display data
- C) Only when linked to JavaScript
- D) Only in Internet Explorer

Q4. How do XML and HTML work together in web applications?

- A) XML formats presentation, while HTML manages database storage
- B) XML stores or transports data, while HTML formats and displays it
- C) HTML deprecates XML completely
- D) Both use identical predefined tags

Answer Key

- A) Extensible Markup Language — XML stands for Extensible Markup Language.
- B) Separating data from presentation — XML stores pure data independently from visual layout.
- B) No, XML does not carry any information about how to display data — XML tags represent data concepts rather than formatting instructions.
- B) XML stores or transports data, while HTML formats and displays it — XML handles data exchange, while HTML renders content visually.

Lesson 114: XML Syntax

Q1. What structural rule must every valid XML document follow regarding root elements?

- A) Must contain at least three <p> tags
- B) Must contain exactly one root element that is the parent of all other elements
- C) Must be written in uppercase tags
- D) Must embed JavaScript

Q2. What does an XML prolog (<?xml version="1.0" encoding="UTF-8"?>) define at the start of a file?

- A) CSS style definitions
- B) XML version and character encoding
- C) Web server IP addresses
- D) Bootstrap grid settings

Q3. Are XML element tags case-sensitive?

- A) No, <Letter> and <letter> are identical
- B) Yes, XML tags are case-sensitive (<Letter> is distinct from <letter>)
- C) Case-sensitive only for root elements
- D) Depends on operating systems

Q4. How must attribute values be formatted in XML syntax?

- A) Attribute values can be unquoted
- B) Attribute values must always be quoted (using single or double quotes)
- C) Attribute values must be integers only
- D) Attributes are illegal in XML

Answer Key

- B) Must contain exactly one root element that is the parent of all other elements — XML requires a single outer root element.
- B) XML version and character encoding — The prolog sets document XML specifications and character sets.
- B) Yes, XML tags are case-sensitive (<Letter> is distinct from <letter>) — XML strictly enforces tag casing.
- B) Attribute values must always be quoted (using single or double quotes) — Unlike HTML, XML requires quotes around all attribute values.

Lesson 121: XML XPath

Q1. What is XPath?

- A) A C++ compiler tool
- B) A syntax language for finding information and navigating in XML documents
- C) A CSS layout framework
- D) An SQL database engine

Q2. What syntax expression does XPath use to navigate XML nodes?

- A) Path expressions
- B) Regular expression wildcards
- C) Form action targets
- D) SQL SELECT queries

Q3. Which XPath expression selects all title elements with attribute lang="en"?

- A) //title[@lang='en']
- B) /title/lang=en

- C) `title.select(lang="en")`
- D) `//title#en`

Q4. What role does XPath play in XML technologies?

- A) It formats document margins
- B) It is a major component used in XSLT transformations
- C) It establishes HTTP host connections
- D) It replaces XML schemas

Answer Key

- B) A syntax language for finding information and navigating in XML documents — XPath provides standard expressions for selecting XML document nodes.
- A) Path expressions — XPath uses path expressions similar to file directory paths.
- A) `//title[@lang='en']` — Square brackets with @ filter elements by attribute values.
- B) It is a major component used in XSLT transformations — XPath is integral to XSLT for querying source nodes.

Lesson 123: JSON – Introduction

Q1. What does JSON stand for?

- A) JavaScript Object Notation
- B) Java Source Open Network
- C) JavaScript Online Node
- D) Java Structure Object System

Q2. How is JSON formatted and categorized?

- A) Heavy binary database format
- B) Lightweight data-interchange format
- C) CSS grid stylesheet
- D) Server operating system

Q3. Is JSON language-independent and text-based?

- A) No, it runs only in Java
- B) Yes, JSON is text-based and used across many programming languages
- C) It requires C++ libraries
- D) It works only in Microsoft Windows

Q4. Why should trailing commas be avoided in JSON data definitions?

- A) Trailing commas are mandatory
- B) Trailing commas cause JSON/JS parsing engines to fail or behave unexpectedly
- C) Trailing commas turn numbers into strings
- D) Commas are illegal in programming

Answer Key

- A) JavaScript Object Notation — JSON stands for JavaScript Object Notation.
- B) Lightweight data-interchange format — JSON is a human-readable, lightweight data format.
- B) Yes, JSON is text-based and used across many programming languages — JSON uses text notation that is easily parsed across platforms.

B) Trailing commas cause JSON/JS parsing engines to fail or behave unexpectedly — Trailing commas violate strict JSON syntax rules.

Lesson 128: HTML5 Semantics

Q1. What defines a semantic element in HTML5?

- A) An element with no intrinsic meaning like `<div>`
- B) An element that clearly describes its content meaning to browsers and developers
- C) A tag used exclusively for CSS colors
- D) A deprecated HTML4 layout block

Q2. Which tag is an example of a non-semantic element?

- A) `<article>`
- B) `<header>`
- C) `<div>`
- D) `<nav>`

Q3. What is the key advantage of semantic tags like `<header>`, `<footer>`, and `<nav>`?

- A) Increases network speed
- B) Enables search engines and assistive tools to identify web content structure
- C) Eliminates the need for CSS
- D) Allows running Python code

Q4. Which HTML5 semantic tag defines introductory container content at the top of a page/section?

- A) `<footer>`
- B) `<header>`
- C) `<aside>`
- D) `<figcaption>`

Answer Key

B) An element that clearly describes its content meaning to browsers and developers — Semantic tags communicate purpose (e.g., `<form>`, `<table>`).

C) `<div>` — `<div>` and `<span>` tell nothing about their contents and are non-semantic.

B) Enables search engines and assistive tools to identify web content structure — Semantics allow search engines and screen readers to parse web structures accurately.

B) `<header>` — The `<header>` element holds introductory titles or navigational aids.

Lesson 171: Bootstrap Tables

Q1. Which base class applies basic Bootstrap styling (padding and horizontal dividers) to a table?

- A) `.table-basic`
- B) `.table`
- C) `.bootstrap-table`
- D) `.tbl`

Q2. Which Bootstrap class adds alternating zebra-stripes to table rows?

- A) `.table-bordered`

- B) .table-striped
- C) .table-hover
- D) .table-condensed

Q3. Which class highlights table rows when hovered over by the cursor?

- A) .table-hover
- B) .table-active
- C) .table-striped
- D) .table-mouse

Q4. What styling adjustment does .table-condensed apply?

- A) Adds thick red borders
- B) Makes tables compact by cutting cell padding in half
- C) Hides table header rows
- D) Changes text to uppercase

Answer Key

- B) .table — Adding the .table class applies basic Bootstrap table styling.
- B) .table-striped — .table-striped adds zebra-striping background shading on alternate rows.
- A) .table-hover — .table-hover enables background highlights on row hover states.
- B) Makes tables compact by cutting cell padding in half — .table-condensed cuts cell padding from 8px to 4px for tight layouts.

Lesson 180: Bootstrap Carousel

Q1. What is the Bootstrap Carousel component used for?

- A) Displaying audio playlists
- B) Cycling through elements like a slideshow
- C) Sorting table rows
- D) Validating form input

Q2. Which class on the carousel container enables CSS slide transition animation effects?

- A) .carousel-inner
- B) .slide
- C) .item
- D) .active

Q3. What happens if NO slide element (<div class="item">) is assigned the .active class?

- A) All slides display together
- B) The carousel will not be visible
- C) The page turns black
- D) The carousel slides backwards

Q4. What are carousel indicators?

- A) Navigation arrow buttons
- B) Little dots at the bottom showing total slides and current slide position
- C) Text captions
- D) Progress bars

Answer Key

- B) Cycling through elements like a slideshow — The Carousel plugin cycles through images or text components.
- B) .slide — The .slide class adds CSS slide transitions between items.
- B) The carousel will not be visible — At least one slide must have .active for the carousel to show on page load.
- B) Little dots at the bottom showing total slides and current slide position — Indicators (.carousel-indicators) show slide counts and current positions.

Lesson 182: W3C Standards and Validations

Q1. What does W3C stand for?

- A) World Wide Web Consortium
- B) Web 3 Content Committee
- C) World Web Code Council
- D) Worldwide Wireless Connection

Q2. Who leads the W3C organization?

- A) Bill Gates
- B) Tim Berners-Lee (Inventor of the Web)
- C) Mark Zuckerberg
- D) Brendan Eich

Q3. What tool does W3C provide online for debugging and validating HTML/XHTML code?

- A) W3C Validator
- B) Chrome DevTools
- C) Firebug Lite
- D) NetObjects Fusion

Q4. What is the core mission of W3C?

- A) Selling web hosting servers
- B) Developing open consensus standards to ensure long-term web growth
- C) Restricting open-source web code
- D) Manufacturing browser hardware

Answer Key

- A) World Wide Web Consortium — W3C stands for World Wide Web Consortium.
- B) Tim Berners-Lee (Inventor of the Web) — W3C is led by Web inventor Tim Berners-Lee.
- A) W3C Validator — The online W3C Validator checks web documents against open standards.
- B) Developing open consensus standards to ensure long-term web growth — W3C builds consensus on web standards to ensure web interoperability.

Lesson 187: Search Engine Optimization (SEO)

Q1. What is Search Engine Optimization (SEO)?

- A) Designing graphic logos
- B) The process of improving a website's ranking/visibility in search engines
- C) Encrypting database connections

D) Compiling CSS grid layouts

Q2. What two areas make up SEO according to the handout?

- A) Client-side and Server-side code
- B) On-Site Optimization (what is on your site) and Offsite Optimization (referrals/links from other sites)
- C) HTML tags and CSS properties
- D) JavaScript functions and loops

Q3. Which technique is cited as an effective offsite optimization practice?

- A) Setting CSS font sizes
- B) Participating in document sharing, infographic sharing, and obtaining backlinks
- C) Defining table borders
- D) Indenting code lines

Q4. How do proper heading tags (<h1>, <h2>) contribute to on-site SEO?

- A) They increase network download speeds
- B) Search engines use heading tags to index document structure and content
- C) They generate automatic backlinks
- D) They encrypt page text

Answer Key

B) The process of improving a website's ranking/visibility in search engines — SEO aims to increase organic search engine visibility.

B) On-Site Optimization (what is on your site) and Offsite Optimization (referrals/links from other sites) — SEO combines internal content tuning with external link building.

B) Participating in document sharing, infographic sharing, and obtaining backlinks — Offsite SEO uses referrals, video promotion, and document/infographic sharing.

B) Search engines use heading tags to index document structure and content — Heading tags guide search crawlers in indexing page hierarchies.

End of Quiz

CS202 — 176 solved MCQs
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