**(1). what are the new tags added in HTML5?**

* HTML5 introduced several new tags to enhance the structure and functionality of web pages.
* Here are some of the notable new tags added in HTML5:-

**1. <article> tag:** The <article> tag is one of the new sectioning element in HTML5. The HTML <article> tag is

used to represent an article.

More specifically, the content within the <article> tag is independent of the other content of

the site (even though it can be related).

**2. <aside> tag:-** The <aside> tag is used to describe the main object of the web page in a shorter way like a

highlighter.

It basically identifies the content that is related to the primary content of the web page but do

not constitute the main intent of the primary page.

The <aside> tag contains mainly author information, links, related content, and so on.

**3. <audio> tag:-** The <audio> tag is used to insert an audio into an HTML webpage.

**4. <canvas> tag:-** The <canvas> tag in HTML is used to draw graphics on a web page using JavaScript.

It can be used to draw paths, boxes, texts, gradients, and add images. By default, it does not

contain borders and text.

**5. <command> tag:-** The <command> tag define a command button, invoke as per user action.

The <command> tag button is used in a special type of operation. The <command> tag is

supported only by Internet Explorer.

**6. <datalist> tag:-** The <datalist> tag is used to provide autocomplete feature in the HTML files.

It can be used with an input tag so that users can easily fill the data in the forms using select the data.

**7. <details> tag:-** The <details> tag is used for the content/information which is initially hidden but could be

displayed if the user wishes to see it.

This tag is used to create an interactive widget that the user can open or close. The content of

the details tag is visible when opening the set attributes.

The <summary> tag is used with the <detail>s tag for specifying visible heading.

**8. <embed> tag:-** The <embed> tag in HTML is used for embedding external applications which are generally

multimedia content like audio or video into an HTML document.

It is used as a container for embedding plug-ins such as flash animations.

This tag is a new tag in HTML 5, and it requires only starting tag.

**9. <figure> tag:-** The <figure> tag in HTML is used to add self-contained content like illustrations, diagrams,

photos, or codes listing in a document.

It is related to the main flow, but it can be used in any position of a document and the figure goes

with the flow of the document and if remove it then it should not affect the flow of the document.

This tag is new in HTML5.

**10. <footer> tag:-** The <footer> tag in HTML is used to define a footer of HTML document. This section contains

the footer information (author information, copyright information, carriers, etc).

The footer tag is used within the body tag. The <footer> tag is new in the HTML5. The footer

elements require a start tag as well as an end tag.

**11. <header> tag:-** The <header> tag contains information related to the title and heading of the related content.

The <header> element is intended to usually contain the section’s heading (an h1-h6 element

or an <hgroup> element), but this is not required.The <header> element can also be used to

wrap a section’s table of contents, a search form, or any relevant logos.

The <header> tag is a new tag in HTML5 and it requires a starting tag as well as an end tag.

There can be several <header> elements in one document.

A <header> tag cannot be placed within a <footer>, <address> or another <header> element.

**12. <hgroup> tag:-** The <hgroup> tag in HTML stands for heading group and is used to group the heading

elements.

-The <hgroup> tag in HTML is used to wrap one or more heading elements from <h1> to

<h6>, such as the headings and sub-headings.

-The <hgroup> tag requires the starting tag as well as ending tag.

**13. <keygen> tag:-** The <keygen> tag in HTML is used to specify a key-pair generator field in a form.

-The purpose of the<keygen> element is to provide a secure way to authenticate users.

-When a form is submitted then two keys are generated, private key and public key. The

private key is stored locally, and the public key is sent to the server.

-The public key is used to generate a client certificate to authenticate a user for the future.

**14. <mark> tag:-** The <mark> tag in HTML is used to define the marked text.

-It is used to highlight the part of the text in a paragraph. The <mark> tag is new in HTML5.

**15. <meter> tag:-** It is used to define the scale for measurement in a well-defined range and also supports a

fractional value.

-It is also known as a gauge. It is used in Disk use, relevance query result, etc.

**16. <nav> tag:-** The <nav> tag is used for declaring the navigational section in HTML documents.

-Websites typically have sections dedicated to navigational links, which enables users to

navigate the site.

-These links can be placed inside a nav tag.

-In other words, the nav element represents a section of the page whose purpose is to provide

navigational links, either in the current document or to another document.

-The links in the nav element may point to other web pages or to different sections of the same

webpage. It is a semantic element.

-Common examples of the nav elements are menus, tables, contents, and indexes.

**17. <output> tag:-** The <output> tag in HTML is used to represent the result of a calculation performed by the

client-side script such as JavaScript.

-The <output> tag is a new tag in HTML5, and it requires a starting and ends tag.

**18. <progress> tag:-** It is used to represent the progress of a task. It is also defined how much work is done and

how much is left to download a thing.

-It is not used to represent the disk space or relevant query.

**19. <ruby> tag:-** The <ruby> tag in HTML is used to specify the ruby annotation which is a small text, attached

with the main text to specify the meaning of the main text.

-This kind of annotation is used in Japanese publications.

**20. <section> tag:-** The <section> tag defines the section of documents such as chapters, headers, footers, or any

other sections.

-The section tag divides the content into sections and subsections.

-The section tag is used when requirements of two headers or footers or any other section of

documents are needed.

-The <section> tag grouped the generic block of related contents.

-The main advantage of the section tag is, it is a semantic element, which describes its meaning

to both browser and developer.

**21. <time> tag:-** The <time> tag is used to display the human-readable date/time.

-It can also be used to encode dates and times in a machine-readable form.

-The main advantage for users is that they can offer to add birthday reminders or scheduled

events in their calendar’s and search engines can produce smarter search results.

**22. <wbr> tag:-** The <wbr> tag in HTML stands for word break opportunity and is used to define the position

within the text which is treated as a line break by the browser.

-It is mostly used when the used word is too long and there are chances that the browser may

break lines at the wrong place for fitting the text.

**23. <video> tag:-** The <video> tag is used to embed video content in a document, such as a movie clip or other

video streams.

**(2). How to embed audio and video in a webpage?**

* To embed audio and video in a webpage, you can use the `<audio>` and `<video>` tags introduced in HTML5. Here's how you can use them:
* **Embedding Audio:-**

**1)** Prepare your audio file in a compatible format such as MP3, WAV, or OGG.

**2)** Place the audio file in the appropriate location on your web server.

**3)** Use the `<audio>` tag to embed the audio in your webpage.

* **Here's an example:**

```html

<audio controls>

<source src="path/to/audio-file.mp3" type="audio/mpeg">

Your browser does not support the audio element.

</audio>

```

* In the example above, the `src` attribute specifies the path to your audio file, and the `type` attribute

specifies the MIME type of the audio file.

* The content within the `<audio>` element serves as fallback content for browsers that do not support the `<audio>` tag.
* **Embedding Video:**

**1)** Prepare your video file in a compatible format such as MP4, WebM, or OGG.

**2)** Place the video file in the appropriate location on your web server.

**3)** Use the `<video>` tag to embed the video in your webpage.

* **Here's an example:**

```html

<video controls>

<source src="path/to/video-file.mp4" type="video/mp4">

Your browser does not support the video element.

</video>

```

* Similar to the audio example, the `src` attribute specifies the path to your video file, and the `type` attribute specifies the MIME type of the video file.
* The content within the `<video>` element serves as fallback content for browsers that do not support the `<video>` tag.
* The `controls` attribute in both examples adds playback controls (such as play, pause, and volume) to the audio and video elements.
* You can also customize the appearance and behavior of the audio and video elements using CSS and JavaScript if needed.

**(3). Semantic element in HTML5?**

* A semantic element clearly describes its meaning to both the browser and the developer.
* Examples of non-semantic elements: <div> and <span> - Tells nothing about its content.
* Examples of semantic elements: <form>, <table>, and <article> - Clearly defines its content.
* Many web sites contain HTML code like: <div id="nav"> <div class="header"> <div id="footer"> to indicate navigation, header, and footer.
* **In HTML there are some semantic elements that can be used to define different parts of a web page:-**
* <article>
* <aside>
* <details>
* <figcaption>
* <figure>
* <footer>
* <header>
* <main>
* <mark>
* <nav>
* <section>
* <summary>
* <time>

**(4). Canvas and SVG tags ?**

* **Canvas:-** The HTML element is used to draw graphics on the fly, via scripting (usually JavaScript). The element is only a container for graphics.
* -You must use a script to actually draw the graphics. Canvas has several methods for drawing paths, boxes, circles, text, and adding images.
* **SVG:-** The Scalable Vector Graphics (SVG) is an XML-based image format that is used to define two-dimensional vector-based graphics for the web.
* Unlike raster image (Ex .jpg, .gif, .png, etc.), a vector image can be scaled up or down to any extent without losing the image quality.
* An SVG image is drawn out using a series of statements that follow the XML schema — that means SVG images can be created and edited with any text editor, such as Notepad.
* There are several other advantages of using SVG over other image formats like JPEG, GIF, PNG, etc.
* **Difference between SVG and HTML5 Canvas:-**

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| --- | --- |
| **SVG** | **Canvas** |
| Vector based (composed of shapes) | Raster based (composed of pixel) |
| SVG has better scalability. So it can be printed with high quality at any resolution. | Canvas has poor scalability. Hence it is not suitable for printing on higher resolution. |
| SVG gives better performance with smaller number of objects or larger surface. | Canvas gives better performance with smaller surface or larger number of objects. |
| SVG can be modified through script and CSS | Canvas can be modified through script only. |
| Multiple graphical elements, which become the part of the page’s DOM tree. Single element similar to <img> in behavior | Canvas diagram can be saved to PNG or JPG format |