Class: 7 IT   Subject: Internet Programming
Time: 1 Hour   Marks: 10
Attend any two questions. All question carry equal marks.

1. What is cascading style sheet? Explain with example.

    Answer : Cascading Style Sheets (CSS) is a style sheet language used for describing the presentation of a document written in a markup language. Although most often used to set the visual style of web pages and user interfaces written in HTML and XHTML, the language can be applied to any XML document, including plain XML, SVG and XUL, and is applicable to rendering in speech, or on other media. Along with HTML and JavaScript, CSS is a cornerstone technology used by most websites to create visually engaging webpages, user interfaces for web applications, and user interfaces for many mobile applications.

    For example, under pre-CSS HTML, a heading element defined with red text would be written as:

    ```
    <h1><font color="red"> Chapter 1. </font></h1>
    ```

    Using CSS, the same element can be coded using style properties instead of HTML presentational attributes:

    ```
    <h1 style="color: red;"> Chapter 1. </h1>
    ```

    The advantages of this may not be immediately clear (since the second form is actually more verbose), but the power of CSS becomes more apparent when the style properties are placed in an internal style element or, even better, an external CSS file. For example, suppose the document contains the style element:

    ```
    <style>
    h1 {color: red;}
    </style>
    ```

    All h1 elements in the document will then automatically become red without any requiring any explicit code. If the author later wanted to

make h1 elements blue instead, this could be done by changing the style element to:

```
<style>
h1 {color: blue;}
</style>
```

rather than by laboriously going through the document and changing the color for each individual h1 element.

The styles can also be placed in an external CSS file, as described below, and loaded using syntax similar to:

`<link href="path/to/file.css" rel="stylesheet" type="text/css">`

This further decouples the styling from the HTML document, and makes it possible to restyle multiple documents by simply editing a shared external CSS file.

2. Explain the Document Object Model with example.

Answer: The Document Object Model (DOM) is a programming interface for HTML and XML documents. It represents the page so that programs can change the document structure, style, and content. The DOM represents the document as nodes and objects. That way, programming languages can connect to the page.

A Web page is a document. This document can be either displayed in the browser window or as the HTML source. But it is the same document in both cases. The Document Object Model (DOM) represents that same document so it can be manipulated. The DOM is an object-oriented representation of the web page, which can be modified with a scripting language such as JavaScript.

The W3C DOM and WHATWG DOM standards are implemented in most modern browsers. Many browsers extend the standard, so care must be exercised when using them on the web where documents may be accessed by various browsers with different DOMs.

For example, the standard DOM specifies that the getElementsByTagName method in the code below must return a list of all the <P> elements in the document:

```
1.    var paragraphs = document.getElementsByTagName("P");
2.    // paragraphs[0] is the first <p> element
3.    // paragraphs[1] is the second <p> element, etc.
4.    alert(paragraphs[0].nodeName);
```

All of the properties, methods, and events available for manipulating and creating web pages are organized into objects (e.g., the document object that represents the document itself, the table object that implements the special HTMLTableElement DOM interface for accessing HTML tables, and so forth). This documentation provides an object-by-object reference to the DOM implemented in Gecko-based browsers.

3. Write short notes on-

   a) Embedded Style Sheets

   This is a CSS style specification method is only used with HTML. An entire style sheet can be embedded in an HTML document using the STYLE [-->Index DOT Html] element contained within the HEAD block. The complete range of CSS syntax is allowed in this inclusion method - the style information is not explicitly tied directly to the document's elements, so Selector syntax is used to specify what styles attach to which portions of the document tree (the same as with External Style Sheets, but in this case the style sheet is contained within the document itself.)

   Unlike external style sheets, this method can only specify style information for the current document. If equivalent style rules are specified in an external and embedded style sheet, the embedded style sheet rule will have higher precedence.

   In HTML, an Embedded Style Sheet is specified using the STYLE [-->Index DOT Html] element within the HEAD element block. For backward compatibility with browsers that do not understand style sheet syntax, the entire contents of the Style element may be embedded in an HTML comment (<!-- -->)

   Syntax:
       <style TYPE="text/css">
```

```
<!--
[CSS Style Sheet]
-->
</style>
```

b) Document Type Definitions (DTDs)

Answer: A Document Type Definition (DTD) is a specific document defining and constraining definition or set of statements that follow the rules of the Standard Generalized Markup Language (SGML) or of the Extensible Markup Language (XML), a subset of SGML. A DTD is a specification that accompanies a document and identifies what the funny little codes (or markup) are that, in the case of a text document, separate paragraphs, identify topic headings, and so forth and how each is to be processed. By mailing a DTD with a document, any location that has a DTD "reader" (or "SGML compiler") will be able to process the document and display or print it as intended. This means that a single standard SGML compiler can serve many different kinds of documents that use a range of different markup codes and related meanings. The compiler looks at the DTD and then prints or displays the document accordingly.

For example, in a DTD one could say that LIST tags can contain ITEM tags, but ITEM tags cannot contain LIST tags. In some editors, when authors are inputting information, they can place tags only where the DTD allows. This ensures that all the documentation is formatted the same way. Applications will use a document's DTD to properly read and display a document's contents. Changes in the format of the document can be easily made by modifying the DTD.

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1. What is web server? explain the apache web server

    Answer: A Web server is a program that uses HTTP (Hypertext Transfer Protocol) to serve the files that form Web pages to users, in response to their requests, which are forwarded by their computers' HTTP clients. Dedicated computers and appliances may be referred to as Web servers as well.The process is an example of the client/servermodel. All computers that host Web sites must have Web server programs. Leading Web servers include Apache (the most widely-installed Web server), Microsoft's Internet Information Server (IIS).

    Apache HTTP Server (usually just called Apache) is generally recognized as the world's most popular HTTP web server. It's fast and secure and runs over half of all web servers around the globe.

    Apache is also free software, distributed by the *Apache Software Foundation* that promotes various free and open source advanced web technologies. The Apache web server provides a full range of features, including CGI,SSL, and virtual domains; it also supports plug-in modules for extensibility.

    Here are a number of benefits to the Apache HTTP Server. The most notable might be that it's entirely free for both personal and commercial uses, so you don't have to ever worry about needing to pay for it; even small one-time fees are non-existent.

    Apache is also reliable software and is updated often since it's still actively maintained.

    This is important when considering what web server to use; you want one that not only will continually provide new and better features but also something that will keep updating to provide security patches and vulnerability improvements.

    While Apache is a free and updated product, it doesn't skimp on features. In fact, it's one of the most feature-filled HTTP web servers available, which is another reason it's so popular.

    Modules are used to add more functions to the software; password authentication and digital certificates are supported; you can customize error messages; one Apache install can deliver multiple websites with its virtual hosting capabilities; proxy modules are available; it supports SSL and TLS, and GZIP compression to speed up web pages.

Here's a handful of other features seen in Apache:

- IPv6
- XML
- FTP
- Perl, Lua, and PHP
- Bandwidth throttling
- WebDAV
- Load balancing
- HTTP/2
- .htaccess
- Multiple Request Processing modes (MPMs)
- URL rewriting
- Session tracking
- Geolocation based on IP address

2. Write a program in PHP to display the text message.

Answer:

```php
<?php
  // Declare the variable 'string' and assign it a value.
  // The <br> is the HTML equivalent to a new line.
  $string = 'Hello World!<br>';

  // You can echo the variable, similar to the way you would echo a
string.
  echo $string;

  // You could also use print.
  print $string;

  // Or, if you are familiar with C, printf can be used too.
  printf('%s', $string);
?>
```

PHP Output:

```
Hello World!<br>Hello World!<br>Hello World!<br>
```

HTML Render:

```
Hello World!
Hello World!
Hello World!
```

3. Write short notes on-

Answer : a)Ajax

AJAX stands for Asynchronous JavaScript and XML. AJAX is a new technique for creating better, faster, and more interactive web applications with the help of XML, HTML, CSS, and Java Script.

- Ajax uses XHTML for content, CSS for presentation, along with Document Object Model and JavaScript for dynamic content display.

- Conventional web applications transmit information to and from the sever using synchronous requests. It means you fill out a form, hit submit, and get directed to a new page with new information from the server.

- With AJAX, when you hit submit, JavaScript will make a request to the server, interpret the results, and update the current screen. In the purest sense, the user would never know that anything was even transmitted to the server.

- XML is commonly used as the format for receiving server data, although any format, including plain text, can be used.

- AJAX is a web browser technology independent of web server software.

- A user can continue to use the application while the client program requests information from the server in the background.

- Intuitive and natural user interaction. Clicking is not required, mouse movement is a sufficient event trigger.

- Data-driven as opposed to page-driven.

Rich Internet Application Technology

AJAX is the most viable Rich Internet Application (RIA) technology so far. It is getting tremendous industry momentum and several tool kit and frameworks are emerging. But at the same time, AJAX has browser incompatibility and it is supported by JavaScript, which is hard to maintain and debug.

AJAX is based on the following open standards −

- Browser-based presentation using HTML and Cascading Style Sheets (CSS).
- Data is stored in XML format and fetched from the server.
- Behind-the-scenes data fetches using XMLHttpRequest objects in the browser.
- JavaScript to make everything happen.

b) ASP.NET

Answer: ASP.NET is an open-source server-side web application framework designed for web development to produce dynamic web pages. It was developed by Microsoft to allow programmers to build dynamic web sites, web applications and web services.

It was first released in January 2002 with version 1.0 of the .NET Framework, and is the successor to Microsoft's Active Server Pages(ASP) technology. ASP.NET is built on the Common Language Runtime (CLR), allowing programmers to write ASP.NET code using any supported .NET language. The ASP.NET SOAP extension framework allows ASP.NET components to process SOAP messages.

SP.NET Web pages, known officially as Web Forms, are the main building blocks for application development in ASP.NET. There are two basic methodologies for Web Forms, a web application format and a web site format.[6] Web applications need to be compiled before deployment, while web sites structures allows the user to copy the files directly to the server without prior compilation.

Web forms are contained in files with a ".aspx" extension; these files typically contain static (X)HTML markup or component markup. The component markup can include server-side Web Controls and User Controls that have been defined in the framework or the web page.

For example, a textbox component can be defined on a page as <asp:textbox id='myid' runat='server'>, which is rendered into a html input box. Additionally, dynamic code, which runs on the server, can be placed in a page within a block <% -- dynamic code -- %>, which is similar to other Web development technologies such as PHP, JSP, and ASP. With ASP.NET Framework 2.0, Microsoft introduced a new code-behind model that lets static text remain on the .aspx page, while dynamic code remains in an .aspx.vb or .aspx.cs or .aspx.fs file (depending on the programming language used).