

**Q.2 a. What are the Core Attributes of XHTML elements?****Answer:**

- **Id** - Uniquely identifies the element in a page. All ids in a document must be distinct. Among other uses, a URL ending in #some id can lead directly to an element inside a document.
- **style** - Gives presentation styles for the individual element. For example, the code

```
<body style="background-color: cyan">
```

gives the color value cyan to the style property background-color for this element.

Several style properties separated by semicolons (;) can be given. The **style** attribute is a direct but inflexible way to specify presentation style. While this attribute is sometimes necessary, better and much more versatile methods for assigning styles are possible.

- **Class** - Specifies the style class for the element. Thus, you may place HTML elements in different classes and associate presentation styles to all elements belonging to the same class.
- **Title** - Provides a title for the element. This may be used for tool-tip display by browsers.

**b. Demonstrate the use of some HTML tags through an example code.****Answer: Show use of 8 HTML tags**

HTML documents have a head which contains control information and a large body. The body contains the content that displays on the screen and tags which control how that content is formatted by the browser. The basic document is demonstrated through example code below:

```
<html>
<head> <title>A Basic Web Page</title> </head>
<body>
<h1>Big on Fruits</h1>
<p>Fruits are good tasting and good for you ...</p>
<p> There are many varieties, ...
and here is a short list: </p>
<ol>
<li> Apples </li>
<li> Bananas </li>
```

```
</li> Cherries </li>
</ol>
</body></html>
```

- Q.3 a. What is a layer? How are they described within HTML code? Illustrate using a suitable code making use of CSS.**

**Answer: Refer Page Nos 110-111 from Text Book**

- b. (i) Write the proper CSS to give p tag a margin of 10 pixels on all sides.**

**Answer:**

```
p {
margin-left: 10px;
margin-top: 10px;
margin-right: 10px;
margin-bottom: 10px;
}
```

- (ii) Create a class in CSS called footer that sets the font-size to 10 pixels.**

**Answer:**

```
footer {
font-size: 10pt;
}
```

- Q.4 a. Briefly explain any four Java Script date functions.**

**Answer: Refer Pg 223 from Text Book**

- b. How to use "join()" to create a string from an array using JavaScript? Give example code to demonstrate.**

**Answer:**

"join" concatenates the array elements with a specified separator between them.

```
<script type="text/javascript">
var days = ["Sunday","Monday","Tuesday","Wednesday",
"Thursday","Friday","Saturday"];
```

```
document.write("days:"+days.join(", "));
</script>
```

This produces

days:Sunday,Monday,Tuesday,Wednesday,Thursday,Friday,Saturday

**c. How to make a array as a stack using JavaScript? Write code.**

**Answer:**

The pop() and push() functions turn a harmless array into a stack

```
<script type="text/javascript">
var numbers = ["one", "two", "three", "four"];
numbers.push("five");
numbers.push("six");
document.write(numbers.pop());
document.write(numbers.pop());
document.write(numbers.pop());
</script>
```

This produces

sixfivefour

**Q.5 a. Write DHTML program for a Smart Form to accept Name, Country, Phone and country code. The program must examine the country setting in the address part of the form and add/remove an input field for the international telephone code.**

**Answer:**

```
<HTML>
<head><title>DHTML Example: Smart Form</title>
<link rel="stylesheet" href="guidedform.css"
type="text/css" title="dynamic guided form" />
<script type="text/javascript" src="smartdform.js">
</script>
</head>
<body onload="init()" style="background-color: #def">
<form method="post" action="http://cgi-bin/join.pl">
<p style="font-weight: bold; font-size: larger">
  Join club.com</p>
  <table><tbody id="tb"> (A)
  <tr><td class="fla">Full Name:</td>
  <td><input onfocus="highlight(this)"
  onblur="normal(this)"
  name="fullname" size="20" /></td></tr>
  <tr><td class="fla">Country:</td>
  <td><select id="country" name="country"
```

```

size="1"
onfocus="highlight(this);"
onchange="countryCode(this);" (B)
onblur="normal(this);" >
<option value="US">USA</option>
<option value="CA">Canada</option>
<option value="MX">Mexico</option>
<option value="CN">China</option>
<option value="RU">Russian Federation
</option>
</select></td></tr>
<tr><td class="fla" >Telephone:</td>
<td><input onfocus="highlight(this)"
onblur="normal(this)"
name="phone" size="20" /><span id="pinst"> (C)
###-###-####</span></td></tr>
<tr id="bt"><td></td> (D)
<td><input onfocus="highlight(this)"
onblur="normal(this)"
type="submit" value="Join Now" /></td>
</tr></tbody></table></form></body>
</HTML>

```

- b. Write short note on following giving appropriate code:**
- (i) The status bar
  - (ii) Rollover button

**Answer:**

**(i) The status bar**

Some web developers like to use the browser's status bar as a part of the site. Test strings can be displayed in the status bar but should be with care. The status bar usually displays helpful information about the operation of the browser. It cannot do that if it is displaying your message. Few people ever look at the status bar, so if it is showing your message they may well not notice. Finally, anything that can be done in the status bar can be done more interestingly using DHTML techniques. Sometimes the script needs to act upon the browser window in which it is running. Other times objects need to change their own parameters. In both cases **self** is used. Example:

```

<html>
  <head>
    <title> DHTML document for demonstrating the status bar </title>
    <script language="javascript">
      <!--
        function Init( )
        {
          self.status = "my message";

```

```

        }
        //-->
    </script>
</head>
<body onLoad="Init()">
    <h1> And the status bar says.... </h1>
</body>
</html>

```

### (ii) Rollover Buttons

The most common usage of Dynamic HTML, and one that you are bound to have seen, is the image rollover. The technique is used to give visual feedback about the location of the mouse by changing the images on the page as the mouse moves over them. This is a highly effective technique, especially where images are used as the hyperlinks in a menu, or where an image map is being used.

The javascript code does not directly manipulate the image. If you need to change the actual image then you ought to investigate ActiveX, Flash or Java programming. The javascript rollover is far simpler because it uses two image files which it swaps between as the mouse is moved. One image is created for the inactive stage when the mouse cursor is not over it. A second image is created for the active state when the mouse cursor is placed over it. Usually the images are identical apart from some highlighting for the active image.

### Q.6 a. What is the meaning of “Automatic Data Context” in perl? Illustrate through an example.

#### Answer:

Perl makes programming easier by detecting the context within which a variable is used and automatically converts its value appropriately.

For example you can use strings as numbers and vice versa.

```
$str1 = "12.5";
```

```
$str2 = "2.5";
```

```
$sum = $str1 + $str2; ## adding as numbers (A)
```

```
print "$sum\n"; ## displaying (B)
```

We used the strings as numbers on line A and the \$sum, which is a number, as a string on line B.

The assignment \$len = @arr uses @arr in a scalar context and turns its value to the length of the array. The automatic conversion of a hash to an array on line 5 is another example.

In a CGI program, the need to convert strings to numbers arises often. For example:

```
$total = param('payment'); ## a string representing a number
```

```
if ( $total > 50 ) ## number context
    { ... }
```

The variable \$total gets the string associated to the HTML form input payment. And we can compare it directly with the number 50. Converting a string that does not represent a number to a number results in the number zero. Thus if \$str != 0 is true then \$str is a valid nonzero number.

**b. What are regular expressions in perl? Write a code demonstrating the use of a variable as a regular expression.**

**Answer:**

Regular expressions are a syntax, implemented in Perl and certain other environments, making it not only possible but easy to do some of the following:

- Complex string comparisons
  - \$string =~ m/sought\_text/; # m before the first slash is the "match" operator.
- Complex string selections
  - \$string =~ m/whatever(sought\_text)whatever2/;
  - \$soughtText = \$1;
- Complex string replacements
  - \$string =~ s/originaltext/newtext/; # s before first slash is "substitute" operator.
- Parsing based on the above abilities

Regular expressions are almost a language in themselves. Their main function is to provide a flexible syntax for finding patterns in text, but the advanced features they now provide virtually make them a language in themselves (for instance someone wrote a regular expression which would find prime numbers!).

Fortunately the basics of regular expressions are very simple and you can be writing your own in no time.

Here's the code demonstrating the use of a variable as a regular expression.

```
#!/usr/bin/perl -w
# use strict;

sub test($$)
{
    my $lookfor = shift;
    my $string = shift;
    print "\n$lookfor ";
    if($string =~ m/($lookfor)/)
    {
```

```
        print " is in ";
    }
    else
    {
        print " is NOT in ";
    }
    print "$string.";
    if(defined($1))
    {
        print "      <$1>";
    }
    print "\n";
}

test("st.v.", "steve was here");
test("st.v.", "kitchen stove");
test("st.v.", "kitchen store");
```

The preceding code produces the following output.

```
[slitt@mydesk slitt]$ ./junk.pl

st.v.  is in steve was here.      <steve>

st.v.  is in kitchen stove.      <stove>

st.v.  is NOT in kitchen store.
[slitt@mydesk slitt]$
```

**Q.7 a. What is a Cookie? What is the format of HTTP Cookie Headers?**

**Answer:**

A **cookie** is a name=value pair. that a web server sends to a browser. The browser stores the cookie received and will return it in well-defined future requests to the same server. A browser may accept or reject a cookie with the approval of the Web surfer. A browser will record cookies accepted and send the appropriate cookies in future requests to servers. The cookie technique was first devised by Netscape and has now become part of HTTP.

A CGI program can send a cookie to a browser with the Set-Cookie header in an HTTP

response. The Set-Cookie header takes the following general form:

```
Set-Cookie: name=value; expires=date;
path=path; domain=domain name; secure
```

**b. Write a CGI script that extracts the parameters from the HTTP request and displays their names and values in an unordered list.**

**Answer: Refer Pg 356 from Ref Book**

- Q.8 a. What combination of boolean values for \$a, \$b, \$c and \$d will result in the variable \$number being equal to 3?**

```
<?php
$a = null;
$b = null;
$c = null;
$d = null;

if($a && !$b) {
    if(!$c && !$d) {
        if($d && ($a || $c)) {
            if(!$d && $b) {
                $number = 1;
            } else {
                $number = 2;
            }
        } else {
            $number = 3;
        }
    } else {
        $number = 4;
    }
} else {
    $number = 5;
}
?>
```

**Answer:**

In order to get the result \$number = 3,

1. if-condition: \$a && !\$b has to be true
  2. if-condition: !\$c && !\$d has to be true as well
  3. if-condition: \$d && (\$a || \$b) has to be false
- so \$a = true, \$b = false, \$c = true, \$d = false in order to fullfill all the if-conditions

- b. Write a PHP script to check whether the user has entered information in all the required fields in a form. Also demonstrate the use of array-search() function.**

**Answer:**



```

<?php
function have_required($array , $required_fields) {
    foreach($required_fields as $field) {
        if(empty($array[$field])) return false;
    }

    return true;
}

if($submitted) {
    echo '<p>You ';
    echo have_required($_POST, array('name', 'email_address')) ?
'did' : 'did not';
    echo ' have all the required fields.</p>';
}
?>
<form action="<?=$PHP_SELF; ?>" method="POST">
    <p>
        Name: <input type="text" name="name" /><br />
        Email address: <input type="text" name="email_address" /><br />
        Age (optional): <input type="text" name="age" />
    </p>

    <p align="center">
        <input type="submit" value="submit" name="submitted" />
    </p>
</form>

```

A variation on `in_array( )` is the `array_search( )` function.

While `in_array( )` returns true if the value is found, `array_search( )` returns the key of the found element:

```

$person = array('name' => 'Farid', 'age' => 35, 'wife' => 'Uma');
$k = array_search($person, 'Uma');
echo("Farid's $k is Uma\n");
Farid's wife is Uma

```

The `array_search( )` function also takes the optional third *strict* argument, which requires the types of the value being searched for and the value in the array to match.

- Q.9 a. Describe briefly the five most important modules in the architecture of DOM. What are the two fields which are not part of the DOM specification?**

**Answer:**

The DOM architecture consists of modules covering different domains of the document object model(DOM):

1. **DOM Core** - specifies the DOM tree, tree nodes, its access, traversal, and manipulation. The DOM Range and DOM Traversal modules provide higher-level methods for manipulating the DOM tree defined by the Core.
2. **DOM HTML** - inherits from the Core and provides specialized and convenient ways to access and manipulate HTML/XHTML documents.
3. **DOM XML** - inherits from the Core and provides support for XML specific needs.
4. **DOM Events** - specifies events and event handling for user interfaces and the DOM tree. With DOM Events, drag and drop programs, for example, can be standardized.
5. **DOM CSS** - defines easy to use ways to manipulate Cascading Style Sheets for the formatting and presentation of documents.

The fields `element.innerHTML` and `document.location`, are not part of the DOM specification.

**b. What is a DTD? Why is it used?**

**Answer:**

A Document Type Definition (DTD) is a set of rules that defines the elements, element attribute and attribute values, and the relationship between elements in a document. When your XML document is processed, it is compared to its associated DTD to be sure it is structured correctly and all tags are used in the proper manner. This comparison process is called validation and is performed by a tool called a parser. Remember, you don't need to have a DTD to create an XML document; you only need a DTD for a valid XML document.

Here's a few reasons you'd want to use a DTD:

- Your document is part of a larger document set and you want to ensure that the whole set follows the same rules.
- Your document must contain a specific set of data and you want to ensure that all required data has been included.
- Your document is used across your industry and need to match other industry-specific documents.
- You want to be able to error check your document for accuracy of tag use.

**TEXT BOOK**

- I. Web Programming – Building Internet Applications, Chris Bates, Third Edition, Wiley Student Edition, 2006.