**COMP 3540 Advanced Web Design and Programming**

Final Exam – winter 2016

**Two and a half hours**

Student Name: Student Number:

Note 1. Do not include any unnecessary explanations or guesses in your answers. They will get **negative** marks.

Note 2. Answer clearly, completely, and correctly. In general partial marks will **not** be given.

1. (26 marks) Fill in the blanks in each of the following.
2. The main purpose of HTML is

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. The main purpose of CSS is

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. The main purpose of client-side JavaScript is

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. The main purpose of PHP is

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

1. In CSS, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are patterns used to select the elements(s) you want to style. (Do not use ‘rules’ as the answer.)
2. The HTML \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ element and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ element can be used as a container for other HTML elements.
3. The four positioning styles are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
4. The CSS \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ property the stack order of an HTML element.
5. The CSS \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ property specifies the type of box used for an HTML element.
6. The four components in the box model are \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
7. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ method attaches an event handler.
8. The PHP \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ function determines whether a variable is empty.
9. The MVC application architecture consists of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.
10. The PHP \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ statement takes all the text/code/markup that exists in the specified file and copies it into the file that uses the statement. This statement will produce a fatal error and stop the script upon failure.
11. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ clause is used to filter the results and apply conditions in some statements that are used for accessing databases.
12. The HTML \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ element is used to read data from the user and send the data to the web server.
13. The PHP \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ function searches string for pattern, returning true if patter exists, and false otherwise.
14. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ can be used to map data of arbitrary size to data of fixed size. It can be used for user authentication.
15. A \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a sequence of characters that define a search pattern.
16. The PHP date() function formats a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ to a more readable date and time.
17. The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ tag is used to embed another document within the current HTML document.
18. An \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a small piece of data sent from a website and stored in the user’s web browser while the user is browsing.
19. At the server side, a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a way to store information (in variables) to be used across multiple pages. (Do not answer with ‘… variables’.)
20. At the client side, the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ object is used to receive server-sent event messages. (You should answer with the object name.)
21. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a set of web development techniques using many web technologies on the client-side to create asynchronous web applications.
22. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a lightweight data-interchange format.
23. (3 marks) Write the HTML code that displays ‘Contact Information’ always at the bottom left corner of window viewport.
24. (3 marks) Write the PHP code to connect to your MySQL database.
25. (8 marks) Complete the following HTML/CSS/JavaScript code that
    * shows a div box over any other elements when the mouse moves over a button, and
    * hides the div box when the mouse moves out from the button.

Initially the div box should not be displayed. You also need to show how to register the event handler using the W3C model, not other models.

<div \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_="\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_:1px solid black; \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_">

This is a box to be displayed.

</div>

<button type="button" \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_='left: 5px; \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_'>

Let’s show/hide the box!

</button>

-------------------------------------------------------------------------------

<script>

</script>

1. (4 marks) Complete the following HTML/CSS code to display the <p> element at the vertical and horizontal center within a div box.

<div style="width:800px; height:500px; border:1px solid black;

">

<p style="width:200px; height:100px; border:1px solid black; ">

This is the paragraph that has to be display at the vertical and

horizontal center within the outer div box.

</p>

</div>

1. (4 marks) Write the HTML code for ‘SignIn’ that
   * reads username and password, and
   * submits them to “controller.php” using the ‘post’ method.

The code should include another input named ‘command’ that is not visible to the user and specifies that the input values are used for ‘SignIn’.

<html><body>

</body></html>

1. (6 marks) Write the PHP file, controller.php, that
   * checks the user input ‘command’,
   * displays ‘start.php’ and exits, when the command value is empty,
   * displays ‘main.php’ when the command value is ‘signin’ and another user input ‘username’ is ‘john’,
   * displays ‘start.php’ when the command value is ‘signin’ and another user input ‘username’ is NOT ‘john’,
   * displays ‘error.php’ when the command values is ‘join’ or ‘forgotpassword’.

You should use at least one if-else statement and one switch statement.

1. (6 marks) Write a regular expression to check a password, where the followings should be supported.

* Passwords should use characters that are lower-case alphabets, upper-case alphabet, 10 digits, and special characters, !, @, #, %, ^, \*.
* Passwords should include minimum 8 characters.
* Passwords should end with an alphabet. (It is not ideal, but just for test.)
* Passwords should include at least one of !, @, #, %, ^, \*.
* Passwords should include at least one digit.

1. (4 marks) Complete the following JavaScript code to send multiple values with one name.

<form \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_='get' \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_='test.php'>

Courses:

<input type="checkbox" \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_=\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_="COMP2680">COMP2680

<input type="checkbox" \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_=\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_="COMP3540">COMP3540

<input type="checkbox" \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_=\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_="COMP4620">COMP4620

<input type=\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_='Submit'>

</form>

1. (3 marks) Write the PHP code that prints all the values sent from the form in the above question 9).
2. (3 marks) Write the PHP code that redirects to a secure communication channel.
3. (6 marks) Write the PHP function that is given username and non-hashed password as parameters, and checks if they are valid with a MySQL database. The function should return a *Boolean* value.

* ‘users’: the table that stores all the usernames and their hashed passwords.
* $conn: a global variable that is used to access the database. (You should not include the code to connect to the MySQL database. You just need to use this variable.)

1. (3 marks) Write the SQL statement that selects all the questions including ‘TRU’ and theirs answers from the two tables ‘answers’ and ‘questions’.

* The table ‘questions’ has two columns – question\_id, question.
* The table ‘answers’ has three columns – answer\_id, question\_id, answer

1. (3 marks) Complete the HTML code that displays the web content into an iframe.

<form method='get' \_\_\_\_\_\_\_\_\_\_\_\_='multiply.php' \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_=\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_>

First value: <input \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_='text' \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_='first-value'>

Second value: <input \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_='text' \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_='second-value'>

<input \_\_\_\_\_\_\_\_\_\_\_\_\_\_=\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ value='Submit'> <!-- submit button -->

</form>

<iframe \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_=\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_></iframe>

1. (3 marks) Complete the JavaScript code that accesses the data in <iframe>.

* '<script> var result = 34; </script>' is sent from the server script and displayed in the <iframe>.
* The data in <iframe> should be displayed in the JavaScript code, using alert().

<script>

</script>

<iframe \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_=\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_></iframe>

1. (7 marks) Complete the JavaScript code that sends ‘command=sign-out’ to ‘controller.php’ when there is no user activity for 10 minutes. The two events, mouse move and key down, are used to check the user activity.

<script>

var count = 0;

window.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_('load', function() {

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(function() {

count++;

if (count >= \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_)

sign\_out();

}, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_);

document.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, function() {

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = 0;

});

document.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, function() {

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_;

});

});

function sign\_out() {

var form = document.\_\_\_\_\_\_\_\_\_\_\_\_\_\_('FORM'); // Is this new form visible?

form.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = 'get';

form.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = 'controller.php';

var input1 = document.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_('INPUT'); // create a DOM element

input1.type = 'text';

input1.name = 'page';

input1.value = 'MainPage';

form.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(input1); // append a child

var input2 = document.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_('INPUT'); // create a DOM element

input2.type = 'text';

input2.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = 'command';

input2.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = '\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_';

form.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(input2); // append a child

form.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_();

}

</script>

1. (3 marks) Write the PHP code that receives a value of ‘command’ from the user, and

* When the ‘command’ value is ‘sign-out’,
  + destroys the session variables ‘signed-in’ and ‘username’,
  + destroys the session, and
  + includes ‘start\_page.php’.

$cmd = $\_GET['command'];

1. (3 marks) Write the JSON file, ‘courses.json’, that includes

|  |  |  |
| --- | --- | --- |
| *Major* | *Number* | *Title* |
| COMP | 3540 | Advanced web design and programming |
| COMP | 4620 | Web-based Information Systems |

The JSON data should be like a linear array of two associative arrays of the same kind, so that this data can be used in the following question.

1. (8 marks) Complete the JavaScript code that retrieve ‘courses.json’ in the above question 18), and displays a table of the course information into a DOM object of id ‘result’.

* Ajax should be used.
* The ‘get’ method should be used.
* The request should be sent to ‘get.php’, NOT directly to ‘courses.json’.
* When you construct the code of table, you should not assume any fixed <th> values and the numbers of <th> values.

var ajax = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(); // Creation of an AJAX object

ajax.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, function() {

if (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ == \_\_\_\_\_ && \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ == \_\_\_\_\_)

display(\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(ajax.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_));

});

ajax.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_(\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, true);

ajax.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_();

function display(books) { // books: a linear array of associative arrays

// of the same kind

var table = '<table>';

// Table header

table += '<tr>’;

for (

table += '</tr>’;

// Rows

table += '</table>';

document.getElementById('display').\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ = \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_;

}