University of Maryland College Park
Dept of Computer Science
CMSC389N Spring 2015
Midterm II Key

Last Name (PRINT): _____

First Name (PRINT): _____

University Directory ID (e.g., umcpturtle)_____

I pledge on my honor that I have not given or received any unauthorized assistance on this examination.

Your signature: _____

Instructions

- This exam is a closed-book and closed-notes exam.
- Total point value is 200 points.
- The exam is a 75 minutes exam.
- Please use a pencil to complete the exam.
- WRITE NEATLY.
- **You don't need to use meaningful variable names; however, we expect good indentation.**

Grader Use Only

#1	Problem #1 (HTML/CSS/ PHP/JS Language)	(60)	
#2	Problem #2 (PHP Coding)	(65)	
#3	Problem #3 (JavaScript Coding)	(75)	
Total	Total	(200)	

Problem #1, (HTML/CSS/PHP Language)

1. (3 pts) Name one use of server side includes.

   Answer:

   Any of the following:

   a. To add a last-modified stamp to a page
   b. To add a date to a page
   c. To include other html files.

2. (9 pts) Complete the following PHP assignment so we can open a file named "data.txt" (for reading). If the file cannot be opened, the script should end and the message "File Opening Failed" should be displayed.

   Answer:
   $fp = fopen("data.txt", "r") or die("File Opening Failed");

3. (3 pts) What role cookies play (when enabled) in PHP sessions?

   Answer: Allows the transmission of the session id.

4. (3 pts) From a security point of view, why we would like to use the PHP functions **htmlspecialchars** and **htmlentities?**

   Answer: To sanitize input (e.g., preventing user-supplied text from containing HTML markup; fight cross-site scripting)

5. (9 pts) Write a SQL command that will create a table named "books" that has two fields: a title (string) and a year (integer).

   Answer: create table books (title varchar(20), year int);

6. (6 pts) Write a SQL command that will insert a record in the "books" table above for a book titled "Aliens" published in the year 2000.

   Answer: insert into books values ("Aliens", 2000);

7. (6 pts) Write a SQL command that will display the titles of books from the "books" table above that were published after the year 2000.

   Answer: select title from books where year > 2000;

8. (6 pts) Define JavaScript code that reads a value using prompt and prints the value provided using alert.

   Answer: alert(prompt("enter value"))

9. (3 pts) Define a JavaScript array with the values 10, 7, and 50.

   Answer: Possible answers: [10, 7, 50] or a = new Array(); a[0] = 10; a[1] = 7; a[2] = 50;

10. (3 pts) In JavaScript which value is associated with object properties that do not exist?

    a. undefined
    b. null
    c. a. and b.
    d. None of the above.

    Answer: a.

11. (3 pts) Which of the following expressions are true in JavaScript?

    ```
    a. NaN == NaN
    b. NaN === NaN
    c. "20" == 20
    ```
    d. None of the above.

    Answer: c

12. (3 pts) What is the DOM?

    Answer: Representation of the elements of a web page as a tree structure consisting of nodes
    Grading: Any reasonable answer receives full credit.

13. (3 pts) Define a JavaScript object that has two properties: **semester** with a value of "summer" and **year** with a value of 2005.

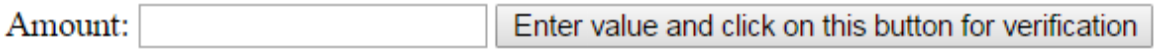
    Answer:
    One possible answer: var obj = {semester: "summer", year: 2005};
    Another answer:

    ```
    var obj = new Object();
    obj.semester = "summer";
    obj.year = 2005;
    ```

Problem #2, (PHP Coding)

For this problem you will implement a loan processing application. The program consists of three files:

1. **apply.html** → Displays a form where the user will provide a loan amount (see image below). The form will use post and will call the script **verify.php**.



Answer:

```
<form action="verify.php" method="post">
     Amount: <input type="text" name="amount" />
            <input type="submit" value="Enter value and click on this button for verification" />
 </form>
```

2. **verify.php** → This script will approve or deny the loan. A loan is automatically approved if the amount is less than or equal to $10,000; otherwise the loan is denied. **Using sessions** this script will pass the loan amount and whether the loan was approved or not to the **confirmation.php** script. The method used is post as well. The following image illustrates what **verify.php** should show after the loan has been evaluated:

Answer:

```
<?php
        require_once("support.php");

        session_start();
        $amount = $_POST['amount'];
        $result = ($amount <= 10000) ? "approved" : "denied";

        $_SESSION['amount'] = $amount;
        $_SESSION['result'] = $result;

        $body = <<<EOFDATA
                <form action="confirmation.php" method="post">
                Loan application processed <input type="submit" value="Click on button to know results" />
                </form>
        EOFDATA;

        echo generatePage($body);
?>
```

3. **confirmation.php → Using sessions** this script will retrieve the amount and loan application decision. If the loan was approved, the script will display a page with the message:

   "Your loan for the amount <AMOUNT> has been approved"

   where <AMOUNT> corresponds to the loan amount.

   Otherwise the message to print will be:

   "Your loan for the amount <AMOUNT> has been denied"

For this problem feel free to use the function generatePage() we saw in class that allows you to generate an HTML document when you provide the body (e.g., generatePage($body)). Assume this function is in the file support.php (make sure you include it). **You may not use JavaScript for this problem.**

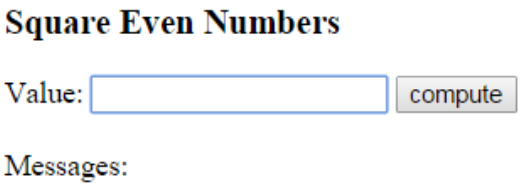
Answer:

```
?php
        require_once("support.php");

        session_start();
        $body = "Your loan for the amount {$_SESSION['amount']} has been {$_SESSION['result']}";

        echo generatePage($body);
?>
```

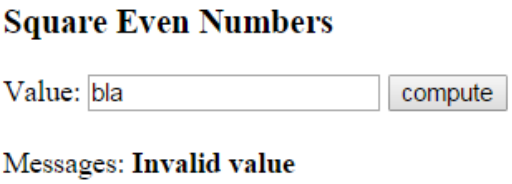
Problem #3, (JavaScript Coding)

Write a **JavaScript (NOT PHP)** program that allow us to display a table of even numbers between 0 and a number provided by a user through a form. For this problem you will provide the body of a **main** function and a **displayTable** function. In addition, you may add any HTML that you understand is needed. For this problem:

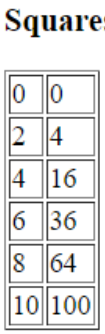
- Define the following form:



- If the user enters a non-numeric value (e.g., "bla") or no value is provided, your program will display the message "Invalid value" next to "Messages:" when the **compute** button is selected. Here is an example:



- If the user provides a numeric value, your program will display a table with the powers of even numbers between 0 and the number provided. For example, after entering 10 in the form and clicking on the **compute** button your program will print the following table:



- Your **main** function will define the **displayTable** as the function the **compute** button will call when selected.
- The **displayTable** function will validate the value provided in the form and display the table. Notice the **displayTable** function does not have any parameters.
- You can use the function isNaN to determine whether a value is a number.
- Notice that the HTML and JavaScript appears in a single file.

Answer:

```
<h3>Square Even Numbers</h3>
Value: <input id="limit" type="text" value=10>
<input type="submit" id="process" value="compute"><br><br>
Messages: <span id="messages"></span>

<script>
        main();

        function main() {
            var buttonInHTMLForm = document.getElementById("process")
            buttonInHTMLForm.onclick = displayTable; // DO NOT PUT ()
        }

        function displayTable() {
            var value = document.getElementById("limit").value, i;
            if (isNaN(value) || value === "") {
                document.getElementById("messages").innerHTML = "<strong>Invalid value</strong>";
            } else {
                document.writeln("<h3>Squares Even Numbers up to " + value + " </h3>");
                document.writeln("<table border='1'>");
                for (i = 0; i <= value; i += 2) {
                      document.writeln("<tr>");
                      document.writeln("<td>" + i + "</td>" + "<td>" + i * i + "</td>");
                      document.writeln("</tr>");
                }
                document.writeln("</table>");
            }
        }
</script>
```