



# University of Maryland College Park

## Dept of Computer Science

### CMSC389N Summer 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)	
<b>Total</b>	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**.

Amount:

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:

Loan application processed

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:

#### Square Even Numbers

Value:

Messages:

- 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:

#### Square Even Numbers

Value:

Messages: **Invalid value**

- 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:

#### Squares Even Numbers up to 10

0	0
2	4
4	16
6	36
8	64
10	100

- 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>
```