ECE 413/513 – Fall 2017

Exam 1
Wednesday, October 11, 2017

Name: _____

No booklets, additional paper, textbooks, or other materials may be referenced during this examination with the exception of one 8.5"x11" sheet of paper (front and back). Your only other resources are a pen/pencil, eraser, and this exam.

Submit answers only in space indicated on each page.

1. Multiple Choice Questions *(1.5 points each)*

(1.1) Which of the following are block tags? *(Choose all that apply)*
    (a) `<a>`
    (b) `<block>`
    (c) `<div>`
    (d) `<p>`
    (e) None of the above

(1.2) Which tag is the most appropriate container for a list of navigation links to internal web pages?
    (a) `<div>`
    (b) `<ul>`
    (c) `<nav>`
    (d) `<navigation>`
    (e) None of the above

(1.3) Which of the following is the correct way to define the contents of a table header?
    (a) `<tr><th>Heading 1</th><th>Heading 2</th></tr>`
    (b) `<th><td>Heading 1</td><td>Heading 2</td></th>`
    (c) `<tr><td>Heading 1</td><td>Heading 2</td></tr>`
    (d) `<td><th>Heading 1</th><th>Heading 2</th></td>`
    (e) None of the above

(1.4) Which CSS rule correctly sets the font family to Arial for all elements with the class `ErrorMessage`?
    (a) `ErrorMessage { font: "Arial"; }`
    (b) `.ErrorMessage { font: Arial; }`
    (c) `.ErrorMessage { font-family: "Arial"; }`
    (d) `#ErrorMessage { font-family: "Arial"; }`
    (e) None of the above

(1.5) Which of the following should use an `<em>` tag? Choose all that apply.
    (a) The homemade *donburi* I had a few night ago hit the spot and was perfect with a glass of *sake*.
    (b) Be careful. The knife is *extremely* sharp.
    (c) *The Tale of Zatoichi* is one of my favorite Japanese movies.
    (d) Attach the *worm gear* to the *spindle end* and loosely tighten.
    (e) None of the above

(1.6) What will be output to the console by the following JavaScript code?

```
var salesTaxRates = {
   85721: 8.6,
   85739: 6.7,
   85749: 6.1
};
console.log(JSON.stringify(salesTaxRates));
```

    (a) `{"85721":8.6;"85739":6.7;"85749":6.1}`
    (b) `{{"85721":8.6},{"85739":6.7},{"85749":6.1}}`
    (c) `{"85721":8.6,"85739":6.7,"85749":6.1};`
    (d) `{"85721":8.6,"85739":6.7,"85749":6.1}`
    (e) Nothing

(1.7) What will be output to the console by the following JavaScript code?

```javascript
var salesTaxRates = {
    85721: 8.6,
    85749: 6.1,
    85739: 6.7,
    85749: 6.1
};

for (var x in salesTaxRates) {
    console.log(x);
}
```

(a) 85721 85739 85749
(b) 6.1 6.7 8.6
(c) 85721
    85739
    85749
(d) 8.6
    6.7
    6.1
(e) Nothing

(1.8) What is the final type and value of the variable totalSum?

```javascript
var totalSum = "10";
totalSum = totalSum * "2";
totalSum = totalSum + "5";
```

(a) Type: Integer, Value: 25.
(b) Type: Integer, Value: 205.
(c) Type: String, Value: "10105"
(d) Type: String, Value: "205"
(e) None of the above

(1.9) What is the resulting URL if a user enters 10.0 as the shipping weight, 405 as the shipping distance, and clicks submit on the following form?

```html
<form action="https://shipping.io">
    <label for="weight">Shipping Weight:</label>
    <input type="text" name="shipWeight" id="weight">
    <label for="distance">Shipping Distance:</label>
    <input type="text" name="distMiles" id="distance">
    <input type="submit">
</form>
```

(a) `https://shipping.io/&weight=10.0?distance=405`
(b) `https://shipping.io/?shipWeight=10.0&distMiles=405`
(c) `https://shipping.io?weight=10.0&distance=405`
(d) `https://shipping.io?shipWeight=10.0&distMiles=405`
(e) None of the above

(1.10) If the element with the ID `outputDiv` does not exist and the div with ID `inputDiv` does exists, what will calling the following `updateStyle()` function do?

```
function updateStyle() {
    document.getElementById("outputDiv").style.fontSize = '12pt';
    document.getElementById("inputDiv").style.fontSize = '14pt';
}
```

(a) After executing both statements, the function will return false.
(b) Throw and exception, causing the function to terminate.
(c) The first statement in the function will have no effect, and the second statement will execute.
(d) Create a new div element with ID `outputDiv` in the DOM.
(e) None of the above

2. Short Answer Questions (*3 points each*)

(2.1) Add a `<label>` with content "Your name" associated to a text `<input>` with name and ID of `yourName`, and a placeholder of "Enter your name".

(2.2) Write a CSS rule that sets the background color to gray and the text color to white for all elements with the class `CardTitle`.

(2.3) Given an array of integers named `userScores`, write JavaScript code that creates a string variable `userScoresList` containing each score separated by a comma.

3. Box Model (6 points)

Given the following HTML and CSS, draw the corresponding webpage. On top of the drawing, annotate how each pixel values in the CSS affects the resulting webpage.

HTML

```
<div class="outside">
   <div class="inside">
      <span class="textspan">Text1</span>
      <span class="textspan">Text2</span>
   </div>
</div>
```

CSS

```
.outside {
  border: 2px solid black;
  width: 200px;
}

.inside {
  padding: 10px;
  margin: 20px;
  border: 2px dashed black;
}

.textspan {
  border-top: 2px dotted black;
  border-bottom: 2px dotted black;
  border-right: 2px solid black;
  padding-right: 5px;
}
```

4. JavaScript updating the DOM (*10 points total*)

```
<!DOCTYPE html>
<html lang="en">
<meta charset="UTF-8">

<title>Some Sort of Calculator</title>
<body>
  <div class="Calculator">
    <div>
      <label for="userInput">Input</label>
      <input type="text" id="userInput" name="userInput">
      <button>Generate Table</button>
    </div>
    <div id="calcOutput"></div>
  </div>
</body>
</html>
```

(4.1) *(4 points)* Given the HTML above, write two JavaScript statements to: 1) register a click event listener for the button that calls the function `calculate()`, and 2) register an input event listener for the text input that calls the functions `validateInput()`.

(4.2) *(6 points)* Write the `validateInput()` function to validate that the user inputs a value greater than 21 and less than 65. If the input is invalid, update the `calcOutput` div to have the contents `<span class="Error">Error: Invalid input.</span>`.

5. **Ajax (*10 points*)**

Write a `getFlightStatus()` function that initiates an Ajax call to a server with the following details.

1. The API endpoint is located at the URL `https://notareal.site/flightstatus`
2. In response to a GET request to the endpoint with the properties `flightcode` and `date`, the API will return JSON listing the current flight status.
3. The `getFlightStatus()` function will be called from a web page containing two text `<input>` elements with IDs `flightCode` and `flightDate`, that are used to specify the flight code and date.
4. When the server response is received, the function `flightStatusResponse()` should be called.

Extra Credit. Ajax (*3 points*) For the previous problem, write a `flightStatusResponse()` function that update a `<div>` with the ID `currentStatus` to list the current flight status. The server's JSON response will consist of the keys `"Flight Status"`, `"Scheduled Departure"`, and `"Estimated Departure"`, where each key's value is a string.