Intro to Programming Final

June 12th 2013

There are a total of 115 possible points on the test. Your grade will be out of 100 however, so there is possibility of earning up to 15 bonus points.

Problem 1 (5 points)

Write an object called `me`. The `me` object should have three properties:

- `firstName` - Your first name
- `lastName` - Your last name
- `birthdate` - a `Date` object that holds your fictitious birthdate.

Problem 2 (2 points)

Display the `firstName` and `lastName` properties of the `me` object with a space in between.

Problem 3 (5 points)

For each data value below, write the type of the value (i.e. what you'd get if you used the `typeof` operator) and whether the value is truthy or falsey.

```
2.3
true
"false"
0
{title: "Introduction to Programming"}
```

Problem 4 (2 points)

Write one way of writing an empty array and one way of writing an empty object.

Problem 5 (8 points)

Finish writing this function that returns the average of an array of numbers.

Hint:You'll need to use a loop and the array's "length" property. Do your work on the back of this page.

```
var calculateAverage = function(numbers) {
    var average;
    // TODO: Calculate the average.
    return average;
}
```

Problem 6 (2 points)

Write the JavaScript that would call your `calculateAverage` function twice, once with each of the arrays below, and log each of the results.

```
var winter2013grades = [80, 92, 98, 88];
var fall2012grades = [68, 99, 74];
```

Problem 7 (10 points)

Given this html write the code to add the values of `#num1` and `#num2` and place the result in `#result`. The solution should place 2.8 in `#result`. You may use jQuery if you'd like. You don't need to worry about any event listeners here.

```
<input type=”text” id=”num1” value=”1.5” />
<input type=”text” id=”num2” value=”1.3” />
<h1>Result:</h1>
<p id="result"></p>
```

Problem 8 (2 points)

What does the following Javascript code print?

```
function doSomething() {
    var name = "Intro to Programming";
}
doSomething();
console.log( name );
```

Problem 9 (2 points)

What does the following Javascript code print?

```
var who = 'Creative Circus students';
var what = 'love robots!';
function evil_stuff() {
    var who = 'Zero Wing';
    what = 'All your base are belong to us!!!';
}
evil_stuff();
console.log( who );
console.log( what );
```

Problem 10 (10 points)

Write a function called `coinFlip`. The `coinFlip` function:

- accepts two parameters (which can be anything)
- calls `Math.random()` (which returns a number between 0 and 1) and stores the result in a variable
- if the result of `Math.random()` is less than 0.5, it returns the first parameter, otherwise it returns the second parameter

(Do your work on the back of this page.)

Problem 11 (4 points)

Call the `coinFlip` function, using the two objects below as it's two arguments. Store the result in a variable. Then log the name of
the person who was returned from `coinFlip` to the console.

```
var person1 = { name: "Thomas Johnson" };
var person2 = { name: "Stephanie Hurt" };
```

Problem 12 (5 Points)

Print out the name property of the second employee's boss.

```
var employees = [
  {
    name: 'John Smithers',
    position: 'Pencil Pusher',
    boss: { name: 'Joe Lafferty', position: 'Project Manager' }
  },
  {
    name: 'Carl Fox',
    position: 'Salesperson',
    boss: { name: 'Laura Story', position: 'Sales Manager' }
  }
];
```

Problem 13 (6 Points)

Using the employees array from the previous question: Joe Lafferty has just been fired for stealing erasers.

- Create a new object with the name "Matt Jones" and the position "Department Manager".
- Then replace the boss property "John Smithers" with the new object you just made.

Problem 14 (10 points)

Write a function called `hasSameBirthdate`. It should:

- Accept two `Date` objects as parameters.
- Return `true` if both dates share the same month and date and `false` otherwise. The year doesn't matter. *(Do your work on the back of this page.)*

Problem 15 (2 Points)
What does a constructor function do?

Problem 16 (2 Points)
What is the purpose of the prototype property of a constructor function?

Problem 17 (4 points)
What is the DRY principle? Why is it important? What are some ways you can DRY up your code?

Problem 18 (2 points)
What is an event listener and what does it do?

Problem 19 (10 points)
Using the below HTML, write an event listener that pops up an alert with the text entered in #message whenever the form is submitted. Make sure that you call the method on the event object that keeps the browser from loading the new page.

```
<form method="get" action="/" id="myForm">
     <input type="text" id="message" value="" />
     <input type="submit" value="Add"
id="myFormSubmit" />
</form>
```

(Use jQuery if you wish. Do your work on the back of this page.)

Problem 20 (5 points)
Write a loop that asks the user for a password (using JavaScript's `prompt()` function) and stores the result in the `password` variable. It should keep looping until the value of `password` is equal to the value of `secret`. You need to actually compare `secret` to `password`.

```
var secret = "abracadabra";
var password = "";
```

Problem 21 (2 Points)
Write a comment (either single line style, or multi-line style) that says what helped you most in understanding programming during this class.

EXTRA CREDIT!!!
Problem 22 (5 points)
What are 5 different object types that you might use when building a card game program?

Problem 23 (10 points)
Make up a test question and then answer it. Make it a good one!