Intro to Programming Midterm

May 8th 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.

#1 (2 points)

Write Javascript code to store your first name and last name in separate variables. Then print them together with a space in between. If you don't know how to do this, just write your name below.

#2 (7 points)

Describe the purpose of the following operators and expressions in Javascript:

```
!
;
=
===
++
-=
return
```

#3 (5 points)

Describe what a variable is (in your own words) as if you were explaining it to someone who had never programmed before. Feel free to use an analogy if you wish.

#4 (1 point)

What does this print?

```
var x;
show( typeof x );
```

#5 (5 points)
Write a `while` loop that does the exact same thing as this `for` loop:

```
for (var i=0; i < 20; i++) {
    console.log(i);
}
```

#6 (5 points)
Write a for loop that logs every *other* number between 2 and 14 to the console. In other words, only show the even numbers.

#7 (2 points)
What does the following program output?

```
var num = "20";
console.log('The sum is: ' + num + 4);
```

#8 (10 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"}
```

#9 (15 points)
Write a function called `countdown`. The `countdown` function should accept a number as a parameter and log every number from that number down to 0 to the console.
(Do your work on the back.)

#10 (2 points)
What does the following Javascript code print?

```
function generateGreeting() {
    var greeting = "hello, world";
}
generateGreeting();
console.log( greeting );
```

#11 (6 points)
Circle the invalid variable identifiers and explain next to them why they are invalid. (i.e. "It is a reserved word.")

```
return

hello

for

$

test

user-input

INPUT

4th_try
```

#12 (3 points)
Explain the DRY principle, including at least one way to DRY up your code.

#13 (8 points)

Write a function called `tipCalculator` that accepts two parameters: the amount of a restaurant bill, and a percentage to tip. It should calculate the amount of the tip and **return** it.
(Do your work on the back.)

#14 (3 points)

Call your `tipCalculator` function three times, with these arguments:
- $20.10 bill. 18% tip
- $80.00 bill. 20% tip
- $4.95 bill. 10% tip

#15 (2 points)

What are objects useful for?
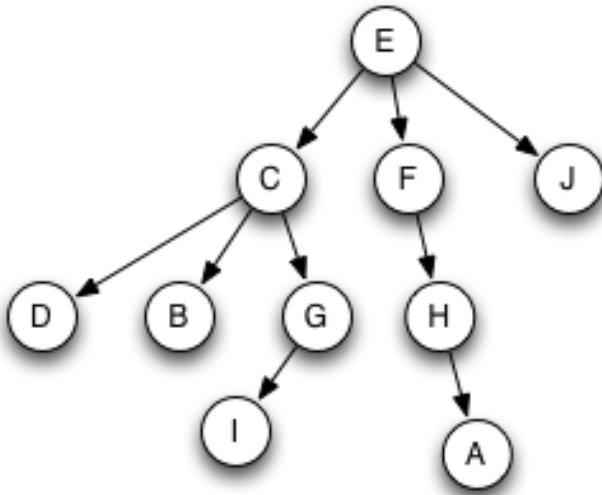

#16 (10 points)

Prompt the user (using the `prompt()` function) to enter a password. Keep prompting them until they enter a value that equals the value of the password variable. Then log `"welcome!"` to the console.

```
var password = 'abracadabra';
```
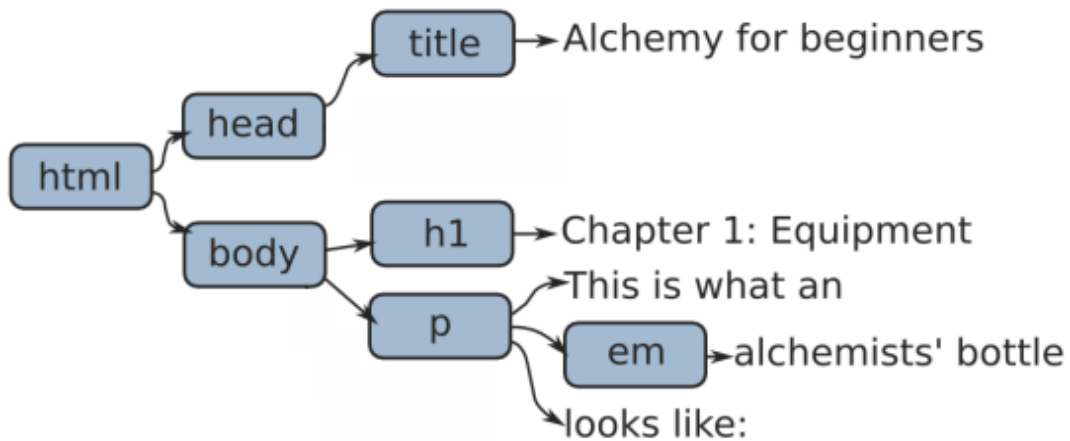
#17 (4 points)

Using the graph below:

- Draw an asterisk beside of the root node
- Draw a square around each sibling of the node labelled "B"
- Draw a hash beside of a leaf node (any one).
- Why is this a "tree" and not just a regular graph?

#18 (5 points)

Using the following DOM element tree, write the HTML that it represents. *(Do your work on the back.)*

#19 (2 points)
What does this print?

```
var vehicle = {
    name: 'Towmater',
    type: 'tow'
    mileage: 132049
};
vehicle.mileage += 120;
console.log( vehicle.mileage );
```


#20 (12 points)
Create a function called `coinFlip`. The `coinFlip` function will not take in any parameters, or return any values. It will randomly **return** either `"heads"` or `"tails"` to the console with equal probability.
(Do your work on the back.)

#21 (5 points)
There are syntax errors in the following JavaScript function that should log a greeting message to the console a specified number of times. Correct it.

```
var greeting = function(personsName; timesToGreet)
    var greeting = "Hello" personsName;

    for (var i=0; i < times; i++) {
        console.log greeting;
    }
```


#22 (1 point)
Write a JavaScript comment (either single line style, or multi-line style) that either tells me something that you'd like to learn how to do with JavaScript, or whatever else you want to tell me.