FINAL EXAMINATION – SPRING 2002
CSC 105 – INTERACTIVE WEB DOCUMENTS
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*This is an open-book, open-notes exam. You may **not** use a computer while you are taking this exam.*

All answers to this exam should be written in your exam booklet(s). Start with the questions that you know how to do, and try not to spend too long on any one question. Partial credit will be granted where appropriate. You will have two hours and twenty minutes. Good luck!

1. **Style Rules**. (7 points) Write a CSS style specification rule that would make all main headings (`<h1>` tags) into bold, 24 point blue type in Arial font. Be sure to include alternate fonts for the Macintosh and other computers that do not have Arial installed.

2. **Style Selectors**. (12 points) Consider the following fragment of HTML:

```
<p class=”main” id=”P1”>This is paragraph #1.</p>

<p class=”main” id=”P2”>This is paragraph #2.</p>

<p class=”digression” id=”P3”>This is paragraph #3.</p>
```

a). How would you write a CSS style specification rule that would apply to the first two paragraphs only? Demonstrate by making a rule that would turn the text of these paragraphs red.

b). How would you write a CSS style specification rule that would apply to the second paragraph only? Demonstrate by making a rule that would put the text of this paragraph in italics.

3. **JavaScript Variables**. (14 points) Consider the following fragment of JavaScript. Give the output that would be produced in the browser window by the pieces of code in parts (a) through (g) below.

```
var i = 5
var j = i+3
var x = 3.7
var y = x-1.25
var a = “Northampton”
var b = a+” Massachusetts”
var p = true
var q = (i <= j)

// Part (a):
document.writeln(j)
```

```
document.writeln("<br />")

// Part (b):
document.writeln(y)
document.writeln("<br />")

// Part (c):
document.writeln(b)
document.writeln("<br />")

// Part (d):
document.writeln(q)
document.writeln("<br />")

// Part (e):
document.writeln("Value of i+x:  "+(i+x))
document.writeln("<br />")

// Part (f):
if (j%2 == 0) {
    document.writeln("Heads!<br />")
} else {
    document.writeln("Tails!<br />")
}

// Part (g):
for (i = 3; i >= 0; i--) {
    document.writeln(i)
}
document.writeln("<br />")
```

4. **JavaScript Events**. (12 points) What JavaScript event handlers would you use for the following tasks? The first one is done for you as an example. For some items you will need to include more than one event handler.

a). Playing a sound when the user selects a link

*Answer: the **onClick** method is triggered when the user selects a link.*

b). Producing a "rollover" effect (swapping an image with another one while the mouse is hovering over it)

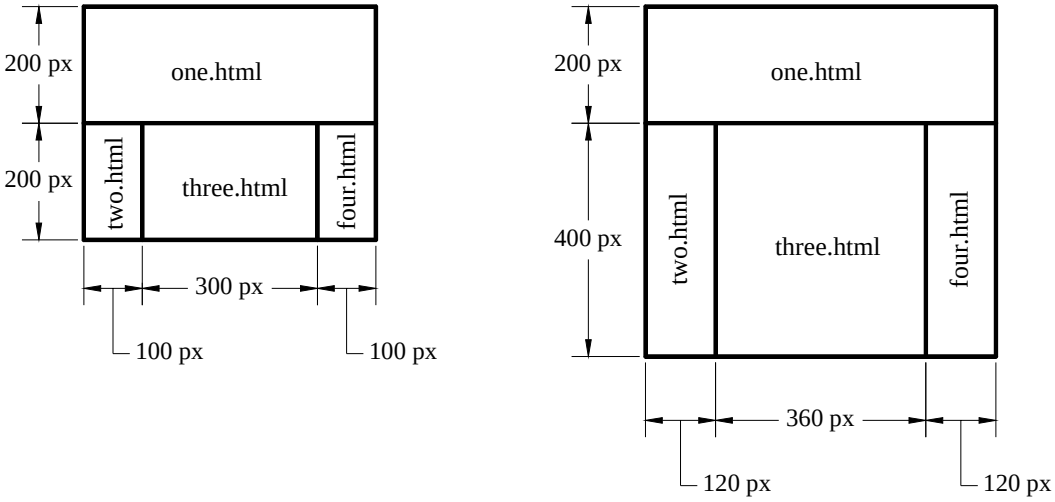
c). Dynamically changing the layout of objects on a page when the user changes the size of the browser window.

d). Checking the data on a form that a user has tried to submit.

5. **JavaScript Functions**. (12 points) Use a function or functions to simplify and improve the following snippet of JavaScript.

```
document.images[“mother”].height *= 5;
document.images[“mother”].width *= 5;
document.images[“father”].height *= 3;
document.images[“father”]. width *= 3;
document.images[“sister”].height *= 4;
document.images[“sister”]. width *= 4;
```

6. **Frames**. (12 points) Give a complete HTML document that would create the single set of frames shown below. The left image shows the frames in a 400x500 pixel window, and the right image shows the **same** set of frames in a 600x600 pixel window. The source files for the four frames are named `one.html`, `two.html`, `three.html`, and `four.html`, as labeled.



7. **HTML Forms**. (16 points) Consider the following snippet of HTML.

```
<form action=”process.html” method=”get” id=”testform”>
    <label for=”memno”>Membership Number:   </label>
    <input type=”text” name=”memno” value=”000 000”
        maxlength=”7” /><br />
    <label for=”paid”>Dues paid?   </label>
    <input type=”checkbox” name=”paid” value=”yes” /><br />
    <label for=”memtype”>Membership type:   </label><br />
    <label for=”smem”>Student</label>
    <input type=”radio” name=”memtype” value=”student”
        id=”smem” /><br />
    <label for=”bmem”>Basic</label>
    <input type=”radio” name=”memtype” value=”basic”
        id=”bmem” /><br />
    <label for=”pmem”>Primo</label>
    <input type=”radio” name=”memtype” value=”primo” id=”pmem”
        checked=”checked” /><br />
    <input type=”submit” name=”submit” value=”done” /><br />
</form>
```

a). Where will the data from this form be sent?

b). What text label will appear on the submit button?

c). What effect (if any) would removing the `<label>` tags have?

d). If the user presses the submit button without altering any of the default values in the form, how will the results be encoded for subsequent processing? (Give the actual string of characters that will be produced.)

8. **Document Object Model**. (15 points) Consider the following snippet of an HTML document, which assumes a W3C-compliant browser. The four variables defined below allow access to the two HTML objects through the document object model. Using these four variables, give a JavaScript command that would make the specified dynamic change to the web page's appearance. The first question is done for you as an example.

```
<img src="vacation.jpg" id="pic" name="pic" height="200"
width="300" />
<p id="para">Some text.</p>
<script language="Javascript" type="text/javascript">
<!--
var picObj = document.getElementById('pic')
var picStyle = document.getElementById('pic').style
var paraObj = document.getElementById('para')
var paraStyle = document.getElementById('para').style
//-->
</script>
```

a). Change the image's source to `vacation2.html`.

Answer: `picObj.src = "vacation2.html"`

b). Change the image's width to 400 pixels.

c). Change the paragraph's background color to green.

d). Change the paragraph text's color to pink.

e). Put a border of width 5 around the image.

f). Change the paragraph text to read "**Some other text.**"