FINAL EXAM – SPRING 2016
CSC 105 ♦ INTERACTIVE WEB DOCUMENTS
NICHOLAS R. HOWE

This is an open-book, open-notes, open-computer exam. You may not consult with anyone other than the instructor while working on this exam.

Events (20 points)

Consider the portion of an HTML document shown below to answer the questions that follow.

```
<script>
function add(s) {
   document.getElementById('out').innerHTML = document.getElementById('out').innerHTML+s
}
</script>
<style>
button {
    margin: 20px; display: block;
}
div {
    float: left;
}
</style>
<div id="A" onMouseOver="add('A')" onMouseOut="add('a')">
<button id="B" onClick="add('B')" onFocus="add('(')" onBlur="add(')')"> B
</button>
</div>
<div id="C" onMouseOver="add('C')" onMouseOut="add('c')">
<button id="D" onClick="add('D')" onFocus="add('[')" onBlur="add(']')"> D
</button>
</div>
<p id="out"></p>
```

a.) Which of the following are possible contents that might appear in the paragraph at the bottom after some sequence of user actions?
   i. AaCc
   ii. A(B)a
   iii. A(BaC)[Dc
   iv. C[DDDc]
   v. C[D][D][D]c
   vi. AAaaCCcc

b.) Describe the sequence of mouse movements that would lead to the text 'AaAaAa' appearing in the bottom of the page.

Cookies (12 points)

Determine whether each of the statements below is true or false.

a.) A persistent cookie must have a set expiration date.
b.) Persistent cookies are shared between different browsers on the same computer.
c.) A session cookie must have a set expiration date.
d.) Setting a cookie with an expiration date in the past has no effect.
e.) By default, a cookie that is set on one page may be read by any other page.
f.) Cookies store information under a key.
g.) Each key may store one or more associated values.
h.) Stored cookies are accessible in the DOM via **`document.cookie`**.
i.) Cookies cannot be set by pages loaded through a `file:` address.
j.) The value of a cookie can be stored even if you turn off your computer.
k.) European law requires web sites that use cookies to notify their users.
l.) U.S. law requires web sites that use cookies to notify their users.

Javascript (20 points)

Rewrite the set of Javascript commands below so that they perform the same actions but **without calling any user-defined functions** like **`moveUp`** or **`toBack`**. (You may still call standard Javascript functions like **`getElementById`**.)

```
function setLevel(tag,z) {
   document.getElementById(tag).style.zIndex = z
}
function getLevel(tag) {
   return Number(document.getElementById(tag).style.zIndex)
}
function moveUp(tag) {
   setLevel(tag,getLevel(tag)+1)
}
function toBack(tag) {
   moveUp('one')
   moveUp('two')
   moveUp('three')
   moveUp('four')
   setLevel(tag,0)
}
toBack('one')
```

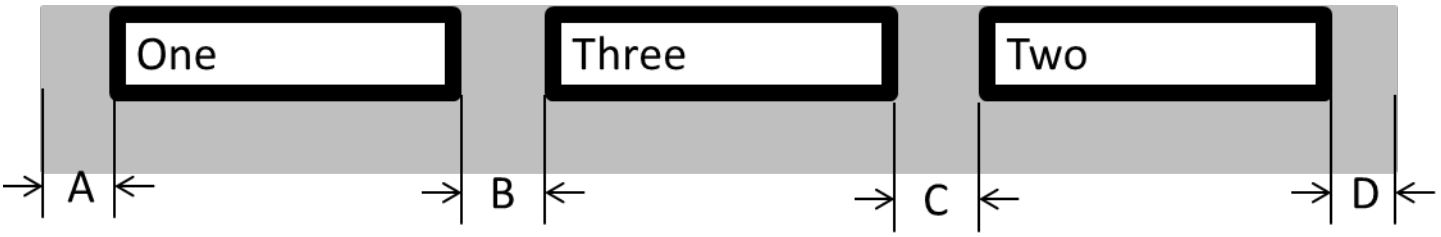
Layout (16 points)

Consider the fragment of a web page shown below, which produces something like the diagram that follows. The diagram is not to scale. Determine the width in pixels of the dimensions A, B, C, and D under the circumstances.

a.) As shown

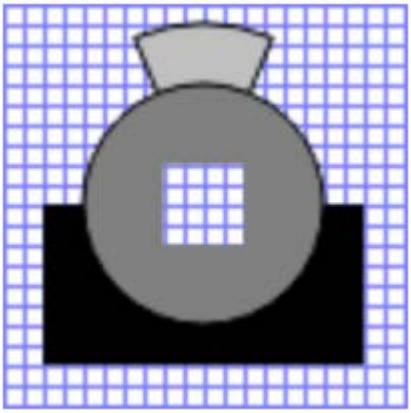
b.) If we add the following style rule at the end: **`div { box-sizing: border-box; }`**

```
<style>
* {
      padding: 0;
      margin: 0;
}
#container {
      width: 800px;
      background-color: gray;
}
#one {
      width: 200px;
      position: absolute;
      left: 25px;
      border: 10px solid black;
}
#two {
      width: 200px;
      float: right;
      border: 10px solid black;
      padding: 0px 10px;
}
#three {
      width: *;
      margin: 0px 250px;
      border: 10px solid black;
}
</style>
<div id="container">
<div id="one">One</div>
<div id="two">Two</div>
<div id="three">Three</div>
<br />
</div>
```



Canvas (16 points)

Devise a set of drawing commands to make the image shown at right. The blue grid is a background image (not drawn on the canvas) where each square is 5x5 pixels. The colors are silver, gray, and black. Both circles are centered at (50,50). (Hint: you should be able to do it with three fills, two strokes, and one clear.) Write code that would fit at the point indicated in the script below.



```
var canvas = document.getElementById('canvas');
if (canvas.getContext) {
   var ctx = canvas.getContext('2d');
   // FILL IN YOUR CODE HERE
}
```

Forms (16 points)

Consider the form below, and answer the questions that follow.

```
<form method="get" action="order.html">
<input type="hidden" name="form" value="2B" />
Left:<input type="radio" name="hand" value="left" />
Right:<input type="radio" name="hand" value="right" /><br />
Sport package?<input type="checkbox" name="sport" value="A OK" />
<br />Feedback:  <input type="text" /><br />
<button type="submit">Submit</button>
</form>
```

a.) List all possible result strings this form could generate when submitted.

b.) Suppose that there is an **`img`** tag in the page with the id **`product`**. You want the **`img`** to display **`right.jpg`** when the right radio button is selected, and **`left.jpg`** when the left button is selected. Show the changes you would make to the page in order to accomplish this.