Computer Science 571 2nd Exam
Prof. Papa

Tuesday, April 28, 2015, 5:30pm – 6:40pm

Name: **Student ID Number:**

1.   **This is a closed book exam.**
2.   **Please answer all questions on the test**

Security and Privacy Questions [10 pts]

Each question is worth 2 points.

Q1: What is a recent technique to construct highly secure passwords?

A1:

Q2: What functionality do PGP and S/MIME provide?

A2:

Q3: What is the main functionality of TOR?

A3:

Q4: Why are browser plugins inherently insecure?

A4:

Q5: Is it possible to send a virus in a cookie?

A5: YES [ ] NO [ ]

Hi-Performance Web Questions [10 pts]

Each question is worth 2 points.

Q1. What percentage of the end-user response time is spent in the front-end?

Q2. What are 2 ways that reduce the number of HTTP requests?

Q3. What 5 components can be GZIP-ed?

Q4. What 2 components should not be GZIP-ed?

Q5. Where should CSS and scripts be placed in a HTML file?

HTML5 Questions [10 pts]

Each question is worth 2 points.

Q1: The use of the <div> tag has been replaced by a number of new elements included in HTML5. Name two of them

A1:

Q2: Which of the following capabilities are included in HTML5?

A2:
[ ] drag file in browser
[ ] interactive canvas gradient
[ ] editable content
[ ] geolocation
[ ] drag and drop
[ ] storage
[ ] ALL OF THE ABOVE

[You must choose the correct choice or choices. There is no partial credit]

Q3: What is the purpose of the different "profiles" included in the H. 264 video standard?

A3:

Q4: What is the meaning of the "preload" video attribute?

A4:

Q5: If you were asked to make sure that your video files could be viewed on the large majority of browsers, what two video containers would you select?

A5:

JSON/AJAX Questions [20 pts]

Each question is worth 2 points.

Q1: Which of the following calls to send() is invalid? Circle your answer.

a. send()

b. send(null)

c. send("x=1&y=2")

Q2: What is the major difference in behavior between client and server in an AJAX transaction?

Q3: What are the 4 basic technologies in AJAX?

Q4: Which readyState and Status combination should you check for to know that an AJAX request is complete? Circle your answer.

a.   3 and 304

b.   2 and 200

c.   **4 and 200**

d.   **5 and 404**

Q5: List 3 properties of JSON

Q6. What is a possible drawback of the eval() function?

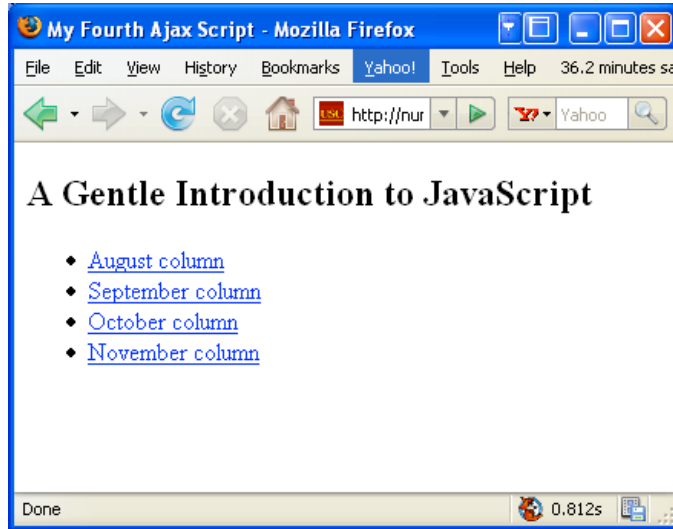**Q7. What is the first index in a JSON array?**

Q8. A JSON encoder must only produce well-formed JSON text.

[ ]True [ ]False

Q9. What is JSONP?

Q10. What are the responsibilities of an "AJAX engine"?

JavaScript and Ajax Questions [10 pts]

Below is the HTML source code that produces the web page above. There are 4 links. When the user cursor is placed over each link, a pop-up widget is displayed viewing the contents of the Web page being hyperlinked.

```html
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN">
<html>
<head>
      <title>My Fourth Ajax Script</title>
      <link rel="stylesheet" rev="stylesheet" href="script04.css"
/>
      <script src="script04.js" type="text/javascript"
language="Javascript">
      </script>
</head>
<body>
<h2>A Gentle Introduction to JavaScript</h2>
<ul>
      <li><a href="jsintro/2000-08.html">August Page</a></li>
      <li><a href="jsintro/2000-09.html">September Page</a></li>
      <li><a href="jsintro/2000-10.html">October Page</a></li>
      <li><a href="jsintro/2000-11.html">November Page</a></li>
</ul>
<div id="previewWin"> </div>
</body>
</html>
```

Below is the JavaScript source code, script04.js, that was imported into the HTML above, but some of the lines are missing, replaced by XXXXXXXs. Fill in the missing.

```javascript
window.onload = initAll;
var xhr = false;
var xPos, yPos;

function initAll() {
      var allLinks = document.getElementsByTagName("a");
```

```
        for (var i=0; i< allLinks.length; i++) {
            XXXXXXXXX1;


        }
}

function showPreview(evt) {
        getPreview(evt);
        return false;
}

function hidePreview() {
        XXXXXXXXX2;


}

function getPreview(evt) {
        if (evt) {
            var url = evt.target;
        }
        else {
            evt = window.event;
            var url = evt.srcElement;
        }
        xPos = evt.clientX;
        yPos = evt.clientY;

        if (window.XMLHttpRequest) {
            xhr = new XMLHttpRequest();
        }
        else {
            if (window.ActiveXObject) {
                try {
                    xhr = new ActiveXObject("Microsoft.XMLHTTP");
                }
                catch (e) { }
            }
        }

        if (xhr) {
            xhr.onreadystatechange = showContents;
            xhr.open("GET", url, true);
            xhr.send(null);
        }
        else {
            alert("Sorry, but I couldn't create an XMLHttpRequest");
        }
}

function showContents() {
        var prevWin = XXXXXXXXX3;



        if (xhr.readyState == 4) {
```

```
        XXXXXXXXX4 = (xhr.status == 200) ? XXXXXXXXX5:
```

```
"There was a problem with the request " + xhr.status;
            prevWin.style.top = parseInt(yPos)+2 + "px";
            prevWin.style.left = parseInt(xPos)+2 + "px";
            prevWin.style.visibility = "visible";
            prevWin.onmouseout = hidePreview;
        }
}
```

JQuery Questions [10 pts]

Q1 (2 pts): Please give an example of a jQuery Basic Class selector that modifies a "border" property.

A1:

Q2 (2 pts): What does jQuery simplify?

A2:

[ ] HTML document traversing
[ ] XMLHttpRequest
[ ] HTTP header manipulatin
[ ] Event Handling
[ ] Animating
[ ] AJAX interactions
[ ] ALL OF THE ABOVE

[You must choose the correct choice or choices. There is no partial credit]

Q3 (6 pts): [This question is worth 6 points] Consider the following example without JQuery:

```
<html>
<body><DIV ID="counter">Number of clicks = 0</DIV>
<FORM> <INPUT TYPE="button" VALUE="Increment Counter"
     onclick="updateMessage()">
</FORM>
<SCRIPT LANGUAGE="JavaScript">
 var hits = 0;
 function updateMessage() {
    hits += 1;
```

```
    document.getElementById("counter").innerHTML = "Number of clicks = " +
hits; }
 </SCRIPT>
<noscript></body>
```

A3: Rewrite it using JQuery. Fill in the missing code.

```
<html>
<head>
<meta charset="UTF-8">
<script
src="https://ajax.googleapis.com/ajax/libs/jquery/1.9.0/jquery.min.js"></scr
ipt>
<script>
$(function() {
     var hits = 0;
     $("XXXXXXXXX1").click(function() {


           XXXXXXXXX2  ("Number of clicks = " + ++hits);



     });
});
</script>
</head>
<body>
<DIV ID="counter">Number of clicks = 0</DIV>
<FORM> <INPUT TYPE="button" VALUE="Increment Counter"
     id=" XXXXXXXXX3">



</FORM>
<noscript>
</body>
```

Responsive Website Design Questions [10 pts]

Each question is worth 2 points.

Q1: Mention <u>one reason</u> why hosting a separate `.mobi` website is not recommended?

A1:

Q2: Mention <u>one reason</u> why hosting a mobile website within your current domain (m.mycompany.com) is not recommended?

A2:

Q3: What is the CSS code (property and value) to hide content on small screens?

A3:

Q4: RWD is abased on "media queries. Please write an example of a media query.

A4:

Q5: List <u>one property</u> of "fluid" grids.

A5:

XML Schema Questions [20 pts]

Consider the following XML empty complex element that has no content, and only one attribute:

```
<product prodid="1345" />
```

[10 pts] Write an XML Schema that defines a "product" element using, xs:element. Xs:complexType and positive integer xs:attribute:

```
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
elementFormDefault="qualified">
```

```
</xs:schema>
```

Consider the following simple XML instance document, note.xml:

```
<?xml version="1.0"?>
```

```
<note>
  <to>Tove</to>
  <from>Jani</from>
  <heading>Reminder</heading>
  <body>Don't forget me this weekend!</body>
</note>
```

[10 pts] Write an XML Schema that conforms to such document:

```
<?xml version="1.0"?>
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
targetNamespace="http://www.w3schools.com"
xmlns="http://www.w3schools.com"
elementFormDefault="qualified">




</xs:schema>
```