

**Computer Science 571 2<sup>nd</sup> Exam**  
**Prof. Papa**  
**Thursday, May 3, 2018, 6:00pm – 7:20pm**

**Name:**

**Student ID Number:**

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

**Cookies and Privacy Questions [10 pts]**

**Each question is worth 5 points.**

**Q1: What is displayed by the alert in the following program?**

```
document.cookie = "test1=Hello";
document.cookie = "test2=World";

var myCookie =
document.cookie.replace(/(?:(?:^|.*;\s*)test2\s*\=\s*([^\;]*)).*$
)|^.*$/ , "$1");

alert(myCookie);
```

**A1:**

**Q2: Define 3 types of cookies.**

**A2:**

**Web Security Questions [20 pts]**

**Each question is worth 2 points.**

**Q1: What are common ways that websites get infected?**

**A1:**

- ☐ SQL Injection attacks
- ☐ XSP Scripting attacks
- ☐ Search Engine result redirection
- ☐ Using social networking sites to infect users
- ☐ Attacks on back end virtual hosting companies
- ☐ ALL OF THE ABOVE

**Q2: Give one example of “weak” password recovery validation**

**A2:**

**Q3: What is a JSON array vulnerable to?**

**A3:**

**Q4: Name two techniques used to bypass the same-origin policy.**

**A4:**

**Q5: What used to be the problem of Domain Keys Identified Mail (DKIM) as implemented by Google Mail?**

**A5:**

**Q6: What is the TLD used on the “deep web”?**

**A6:**

**Q7: What combination of 2 tools adds an extra layer of encryption and anonymity making it virtually impossible to trace a user on the Web?**

**A7:**

**Q8: At which point a TOR path becomes “unencrypted”?**

**A8:**

**Q9: Who has been the major target, by “size pf breach”, of top corporate hacks?**

**A9:**

**Q10: Define, in a sentence, DDoS.**

**A10:**

## High-Performance Websites Questions [20 pts]

Each question is worth 2 points.

**Q1: What Rule is this code an example of?**

```
uF(this.L,this.Q,new G(b[a].x,b[a].y));var  
c,d,e,f=$L(this,a),g=aM(this,a);e=b=c=d=0;
```

**A1:**

**Q2: Why should you make JavaScript and CSS external?**

**A2:**

**Q3: Why using a large number of hostnames in a web page is not good for performance?**

**A3:**

**Q4: When is the use of ETags not recommended?**

**A4:**

**Q5: What is the interaction between favicon.ico and cookies and how do you optimize it?**

**A5:**

**Q6: Where should you put style sheets and why to optimize performance?**

**A6:**

**Q7: Where should you put scripts and why to optimize performance?**

**A7:**

**Q8: Should a web server compress images? If yes or no, elaborate why.**

**A8:**

**Q9: Should you scale images or not, and why?**

**A9:**

**Q10: What are the two (2) rules (of the initial 14 Souders/Theurer rules) that minimize the transfer of information between server and browser?**

**A10:**

## **HTML5 Questions [20 pts]**

**Each question is worth 2 points.**

**Q1: In a <canvas> element what is the purpose of the “id” attribute?**

**A1:**

**Q2: Which of the following are new elements in HTML5?**

- ☐ article
- ☐ aside
- ☐ applet
- ☐ header
- ☐ column
- ☐ nav
- ☐ ALL OF THE ABOVE

**Q3: Which of the following are removed elements in HTML5?**

**A3:**

- ☐ center
- ☐ font
- ☐ footer
- ☐ applet
- ☐ time
- ☐ frameset
- ☐ ALL OF THE ABOVE

**Q4: Name three new elements requested by newspaper publishers?**

**A4:**

**Q5: What is the required attribute of the <video> element in HTML5, when the video is in a single format?**

**A5:**

**Q6: What are Quicktime (.MOV) and Flash (.FLV) files?**

**A6:**

**Q7: Which of the following are new in HTML5?**

- ☐ video and audio support
- ☐ graphics support
- ☐ local storage
- ☐ SQL support
- ☐ Geocoding support
- ☐ Semantic elements
- ☐ CSS3 support
- ☐ ALL OF THE ABOVE

**Q8: What happened to the HTML 4.01 elements <center> and <font> in HTML5?**

**A8:**

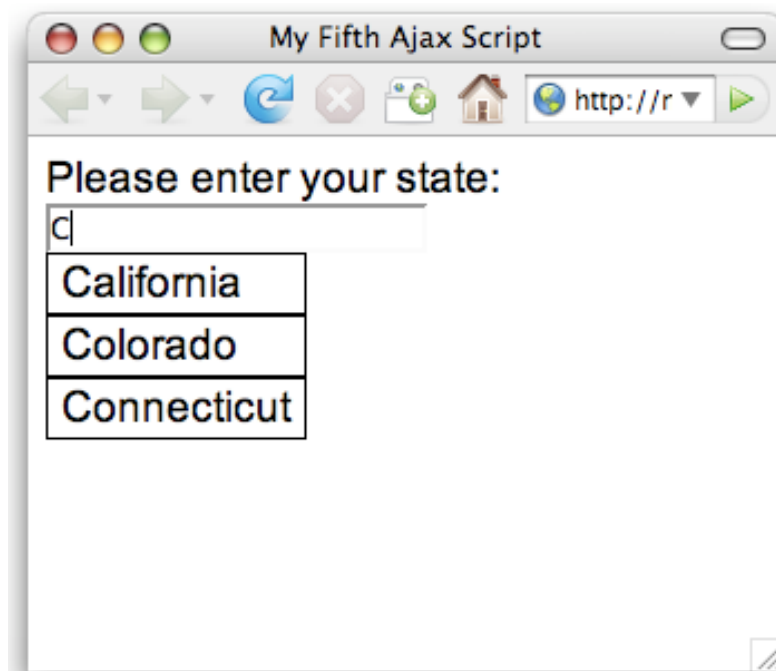
**Q9: Name 4 Audio Codecs**

**A9:**

**Q10: If you needed to make sure that your video files could be viewed on the large majority of browsers, what two video containers would you pick?**

**A10:**

### **JavaScript and Ajax Questions [10 pts]**



**Below is the HTML source code that produces the web page above. There is one edit box, and when each character is typed, a list appears that shows the “suggested” valid answers, obtained from the XML file us-states.xml.**

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN">
<html>
<head>
    <title>My Fifth Ajax Script</title>
    <link rel="stylesheet" rev="stylesheet"
href="script05.css" />
    <script src="script05.js" type="text/javascript"
language="Javascript">
    </script>
</head>
<body>
    <form action="#">
        Please enter your state:<br />

        <input type="text" id="searchField"
autocomplete="off" /><br />
        <div id="popups"> </div>
    </form>
</body>
</html>
```

**Below is the JavaScript source code, script05.js, that was imported into the HTML above, but some of the lines are missing, replaced by XXXXXXXXs. Fill in the missing.**

```
window.onload = initAll;
var xhr = false;
var statesArray = new Array();

function initAll() {
    document.getElementById("searchField").XXXXXXXXXX1

    _____

    = XXXXXXXXXXXX1;

    _____

    if (window.XMLHttpRequest) {
        xhr = new XMLHttpRequest();
    }
```

```

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

        if (xhr) {
            xhr.onreadystatechange = XXXXXXXXXX2;

---


            xhr.open("GET", "us-states.xml", true);
            xhr.send(null);
        }
        else {
            alert("Sorry, but I couldn't create an
XMLHttpRequest");
        }
    }

    function setStatesArray() {
        if (xhr.readyState == 4) {
            if (xhr.status == 200) {
                if (xhr.responseXML) {
                    var allStates =
xhr.responseXML.getElementsByTagName("item");
                    for (var i=0; i<allStates.length; i++) {
                        statesArray[i] =
allStates[i].getElementsByTagName("label")[0].firstChild;
                    }
                }
            }
            else {
                alert("There was a problem with the request " +
xhr.status);
            }
        }
    }

    function searchSuggest() {
        var str = document. XXXXXXXXXX3;

---


        document.getElementById("searchField").className = "";
    }

```

```

    if (str != "") {
        document. xxxxxxxxxx4 = "";



---



        for (var i=0; i<statesArray.length; i++) {
            var thisState = statesArray[i].nodeValue;

            if
            (thisState.toLowerCase().indexOf(str.toLowerCase()) == 0) {
                var tempDiv =
document.createElement("div");
                tempDiv.innerHTML = thisState;
                tempDiv.onclick = makeChoice;
                tempDiv.className = "suggestions";

                document.getElementById("popups").appendChild(tempDiv);
            }
            var foundCt =
document.getElementById("popups").childNodes.length;
            if (foundCt == 0) {
                document.getElementById("searchField").className
= "error";
            }
            if (foundCt == 1) {
                document.getElementById("searchField").value =
document.getElementById("popups"). xxxxxxxxxx5;



---


                document.getElementById("popups").innerHTML =
"";
            }
        }
    }

function makeChoice(evt) {
    var thisDiv = (evt) ? evt.target :
window.event.srcElement;
    document.getElementById("searchField").value =
thisDiv.innerHTML;
    document.getElementById("popups").innerHTML = "";
}

```



## JQuery Questions [10 pts]

Each question is worth 2 points.

**Q1: (2 points)** What is the JQuery code that corresponds to the following?

```
var myButton = document.getElementById("myButton");
```

**A1:**

**Q2: (2 points)** What are three examples of JQuery “basic” selectors?

**A2:**

**Q3: If you were to use JQuery make your code independent of Browser differences, which set of functions would you pick?**

**A3:**

**Q4: Name 2 categories of JQuery selectors**

**A4:**

**Q5: [Each “correct” missing line is worth 1 point. NO PARTIAL CREDIT]**

Consider the following example without JQuery:

```
hex=255 // Initial color value.
function fadetxt() {
    if(hex>0) { //If color is not black yet
        hex -= 11; // increase color darkness

document.getElementById("sample").style.color="rgb("+hex+", "+hex+", "+hex+")";
        setTimeout("fadetxt()",20);    }
    else    hex=255 //reset hex value
}
```

**A5: Rewrite it using JQuery. Assume #fadeText is the id of the button.**

```
$(function() { // when document is ready
    XXXXXXXXXXX1 { // set a onClick handler on fadeText

    _____

    XXXXXXXXXXX2 ;

    _____
    // fadeOut the h3 for 125 ms, delay, then fadeIn for
125 ms
    });
});
```

## JavaScript Frameworks, Libraries & Serverless Questions [10 pts]

Each question is worth 2 points.

**Q1. Which of the following are TRUE of React?**

- ☐ ReactJS is a “view layer library
- ☐ ReactJS is a framework like AngularJS
- ☐ ReactJS implements MVC
- ☐ Using ReactJS it is easy to mix HTML and JavaScript
- ☐ React Native allows to build iOS apps
- ☐ ALL OF THE ABOVE

Note: there is no partial credit

**Q2. What is JSX?**

A2.

**Q3. Which of the following are TRUE of Firebase?**

- ☐ Is a cross platform set of tools
- ☐ Includes functionality for authentication
- ☐ Includes functionality for data mapping
- ☐ Requires the use of a GCP project
- ☐ ALL OF THE ABOVE

Note: there is no partial credit

**Q4. Which of the following are TRUE of Node.js?**

- ☐ Is a JavaScript runtime built on Chrome V8
- ☐ Uses blocking IO model
- ☐ Includes modules that handle HTTP
- ☐ Includes modules that handle IP
- ☐ Is bundled with 'npm'
- ☐ ALL OF THE ABOVE

Note: there is no partial credit

**Q5. Name 2 platforms for serverless architectures.**

**A5.**