

CS472 Web Programming Midterm

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Student Id: _____

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The exam takes 2.5 hours.

Please read the exam policy before you start the exam.

Exam Policy:

There is no tolerance policy for exams. **You will be asked to leave the exam room immediately without a warning** once you do the following things which mean you'll get **NC**.

1. You are caught cheating or trying to cheat.
2. Answers should be written with a Pen or Pencil, but if you want to use a pencil please bring your own eraser and sharpener. You're not allowed to borrow from other students or proctors during exam.
3. All mobile phones should be turned off and submitted along with your luggage at the beginning of the exam.
4. Please get ready and use the washroom before the exam as **no one** will be allowed to leave the exam room before turning in their papers. (no restroom, no water)
5. You're not allowed to ask/get extra papers from other students or proctors. All your notes must be written on the exam paper provided. Use the back side if you need to draft.

Please write down your answer clearly. If I cannot read your answer, you'll not get credit.

Good luck!

PART I (10 points): True/False

1. T HTTP was originally designed to be stateless, which means that Web browsers stored no persistent data about a visit to a Web site.
2. F Hidden form fields maintain state information between Web pages, and the data they contain are shown in the browse bar when we use POST method to submit form.
3. F `
` is an inline element since it makes the text start with a new line.
4. T `text-align:center` can be used to center inline elements horizontally.
5. F `font-color` property in css is used to change the text color of an element.
6. F The `css` attribute of HTML is used to define inline css style.
7. T You can use a `for...in` loop to determine if values are being assigned to the correct properties in an object.
8. F In Javascript, the only way to invoke a function is through `functionName` and `append()` after it, such as `myFunction()`.
9. F Without WIFI, a mobile device cannot get current geolocation.
10. T The Session Storage Data would be deleted by the browsers immediately after the session gets terminated.

PART II (10 points): Multiple Choices. Circle the correct answer.

11. You're developing a customer web form that includes the following HTML:
`<input id="txtValue" />`
You need to change HTML markup so that customers can enter only valid three-letter country code. Which HTML should you use?
 - A. `<input id="txtValue" type="country" pattern="\d{3}" />`
 - B. `<input id="txtValue" type="country" pattern="[A-Za-z]{3}" />`
 - C. `<input type="text" id="txtValue" pattern="\.{3}" />`
 - D. **`<input type="text" id="txtValue" pattern="[A-Za-z]{3}" />`**
12. When describing the structure of HTML code, which of the following is NOT a correct statement?
 - A. Some HTML elements require only a start tag.
 - B. All HTML elements may have attributes applied to them.
 - C. HTML elements are marked with start and end tags.
 - D. **All attributes control the appearance of the element's text.**
13. What is the output? `var x = 100/"Banana";`
 - A. null
 - B. **NaN**
 - C. undefined
 - D. Infinity
 - E. None of the above

14. If you pass less number of parameters than the expected number of parameters to a function, the missing parameters get assigned the value ____.

- A. **undefined**
- B. null
- C. Syntax Error
- D. None of **the** above

15. Consider this CSS code:

```
div {  
    color: pink;  
}
```

Which of the following statements about this code is NOT correct?

- A. The braces ({ }) are optional.
- B. The line breaks are optional—the code may all appear on one line.
- C. The two spaces at the start of the second line are optional.
- D. **The semicolon (;) is optional.**

PART III (20 points): Short answer questions

16. (10 points) Explain the following CSS selectors which elements will be selected and provide a correct HTML example

For example: div

Answer: Select all div elements on the page

```
<div>some text</div>
```

a. div#a

```
<div id="a"></div>
```

b. section .b

```
<section>
```

```
    <p class="b"> </p>
```

```
</section>
```

c. div#b.mytest > article

```
<div id="b" class="mytest">
```

```
    <article> </article>
```

```
</div>
```

d. div .c > span.special

```
<div>
```

```
    <div class="c">
```

```

        <span class="special"> </span>
    </div>
</div>
e. header ul#nav li

<header>
    <ul id="nav">
        <li> </li>
    </ul>
</header>

```

PART IV(57 points): Programming Questions

17. (6 points) What's the text color and background color of **the text (First, Second, Third)**?

<pre> <div> <p class="a">First</p> <div class="b"> <p> Second </p> <li id="item"> <p>Third</p> </div> </div> </pre>	
<pre> div { color: red; background-color: yellow; } p { color: cyan; background-color: gray; } span { color: green; background-color: blue; } </pre>	<pre> .b > p { color: purple; background-color: pink; } div.b ul #item { color: AliceBlue; background-color: Beige; } </pre>

	Color	Background-color
First	Cyan	gray
Second	green	<u>blue</u>

Third	Cyan	gray
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18. (10 points) Draw a page layout if the screen has width 1024px, height 768px, and the HTML & CSS:

NOTE:

- You don't need to use different color for border, black is good enough
- No credit if page layout isn't clear

```
<div id="a">A
  <div class="floaty" id="b">C</div>
  <div id="c">D
    <div id="d">E</div>
  </div>
</div>
```

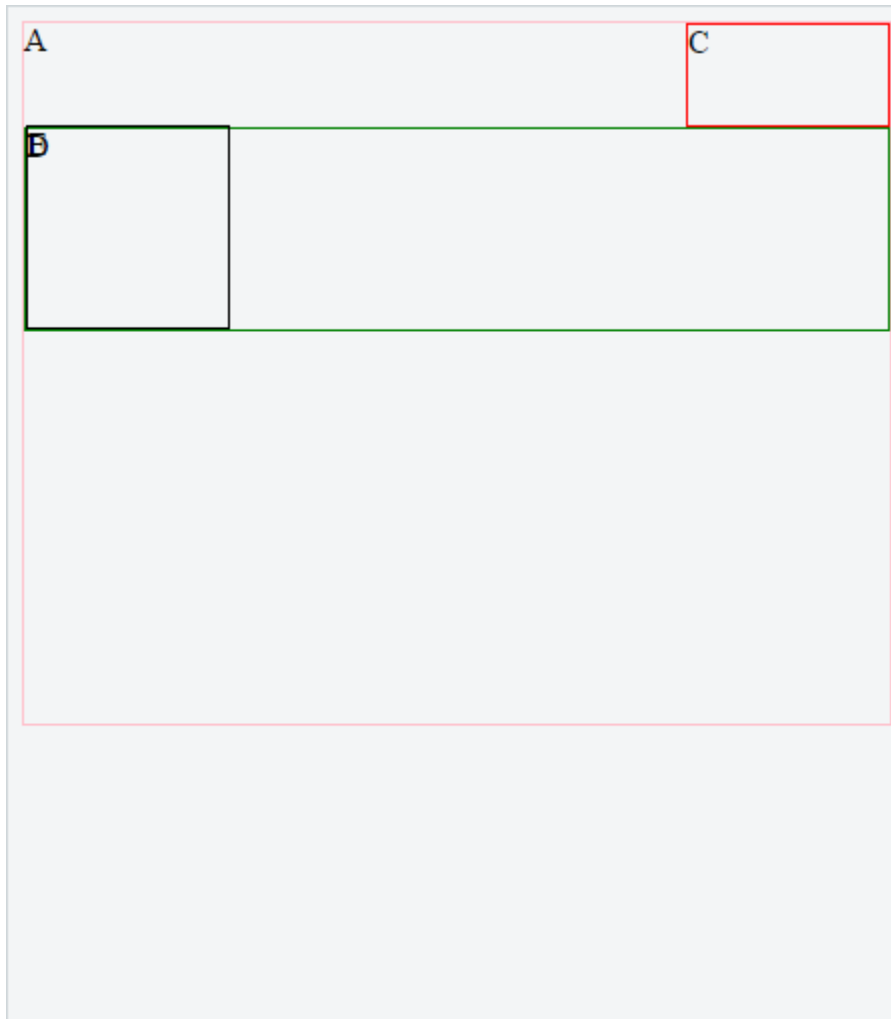
```
div {
  border: 1px solid;
}

#a {
  height: 350px;
  border-color: pink;
}

.floaty {
  float: right;
  width: 100px;
  height: 50px;
  border-color: red;
}
```

```
#c {
  clear: right;
  position: relative;
  height: 100px;
  border-color: green;
}

#d {
  position: absolute;
  bottom: 0px;
  left: 0px;
  width: 100px;
  height: 100px;
}
```

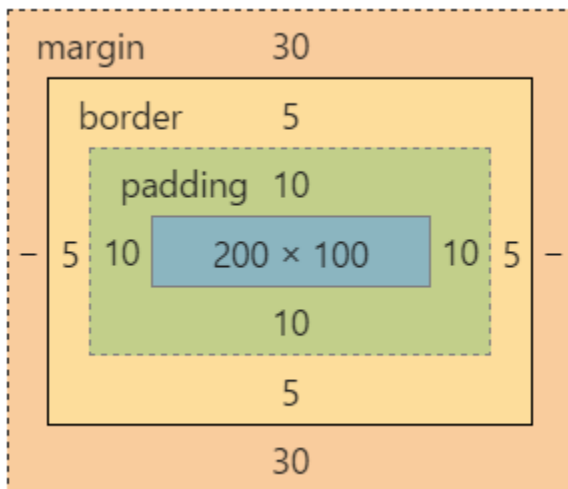


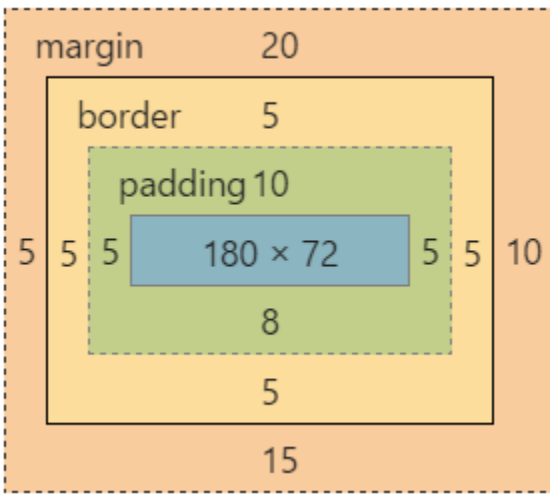
19. (8 points) Draw box model for the two div elements below. Then calculate the total height which occupied by the two divs on the page.

NOTE:

- You must draw box model in details (all borders, padding, margins with px)
- You must provide the formula on how to get the height. No credit if you only give a number.

<code><div id="div1">Lorem ipsum dolor sit amet.</div></code>	
<code><div id="div2">Lorem ipsum dolor sit amet.</div></code>	
<pre>#div1 { background-color: lightblue; width: 200px; height: 100px; padding: 10px; border: 5px solid navy; margin: 30px 0; }</pre>	<pre>#div2 { background-color: yellow; width: 200px; height: 100px; padding: 10px 5px 8px; border: 5px solid red; margin: 20px 10px 15px 5px; box-sizing: border-box; }</pre>





$$30+5+10+100+10+5+30+100+15 = 305\text{px}$$

20. (10 points) Determine what this JavaScript code will print out. (You must write down your answer in the order as the code prints out. No credit if your answer's order isn't correct)

<pre> x = 1; var a = 5; var b = 10; var c = function(a, b, c) { console.log("x1: " + x); console.log("a2: " + a); var f = function() { b = a; console.log("b3: " + b); b = c; var a = 3; } f(); console.log("b4: " + b); x = 6; } c(8, 9, 7); console.log("b5: " + b); console.log("x6: " + x); </pre>	<p>Your answer:</p> <p>x1: 1</p> <hr/> <p>a2: 8</p> <hr/> <p>b3: undefined</p> <hr/> <p>b4: 7</p> <hr/> <p>b5: 10</p> <hr/> <p>x6: 6</p> <hr/>
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21. (5 points) Determine what the jQuery code will do. (If there's alert pops up, you must write down the popups in the order it should be. No credit if the order isn't correct.)

<pre> <div id="div1">A <div>B </div> <div id="div2"> <p id="myp">C</p> </div> </div> </pre>	<pre> //continued \$("body").click(function() { alert("Hello 4"); }); \$("div").click(function() { alert("Hello 5"); }); \$("#div1").click(); \$("#myp").click(); }); </pre>
<pre> \$(function() { \$("div p").click(function() { alert("Hello 1"); }); \$("div p").click(function(evt) { alert("Hello 2"); }); \$("div p").click(function() { alert("Hello 3"); evt.stopImmediatePropagation(); }); }); </pre>	

Your answer:

Hello 5, Hello 4, Hello 1, Hello 2

22. (13 points) Write the following JavaScript code Requirement in **strict mode**:

- Create a function constructor `Employee` that has 1 parameter and three variables:
 - The parameter's name is `id`
 - 3 variables:**
 - `id` is a number with value passed in through the function argument
 - `name` is a string with default value "Default"
 - `employer` is an object with property `name="MUM"`
- Write a method `getName()` to return Employee Object's name
- Write a method `getEmployerName()` to return employer's name of Employee Object
- Create an object `john` from `Employee` with `id = 980000`

Method `getName()` and `getEmployerName()` should be written without changing the structure or adding code to `Employee`. Make sure to use **Module Pattern (IIFE)** and your code does not leave any trace into the global window object.

```
"use strict";
(function() {
    function Employee(id) {
        this.id = id;
        this.name = "Default";
        this.employer = {name: "MUM"};
    }

    Employee.prototype.getName = function() {
        return this.name;
    }

    Employee.prototype.getEmployerName = function() {
        return this.employer.name;
    }

    var john = new Employee(980000);
})();
```

23. (5 points) Rewrite the following code by using jQuery and JavaScript Object Literal. You must implement the same functionality as the code does. (No credit if you don't use jQuery and JavaScript Object Literal). You might use the below jQuery API:

.prepend(content [, content]): Insert content, specified by the parameter, to the beginning of each element in the set of matched elements.

content: DOM element, text node, array of elements and text nodes, HTML string, or jQuery object to insert at the beginning of each element in the set of matched elements.

```
var spans = document.querySelectorAll("#ex1 span.special");
for (var i = 0; i < spans.length; i++) {
    var img = document.createElement("img");
    img.src = "../images/laughing_man.jpg";
    img.alt = "laughing man";
    img.style.verticalAlign = "middle";
    img.style.border = "2px solid black";
    img.onclick = function() {
        alert("clicked");
    }
    spans[i].insertBefore(img, spans[i].firstChild);
}
```

```
$("#ex3 span.special").prepend($("<img>", {
    "src": "../images/laughing_man.jpg",
    "alt": "laughing man",
    "css": {
        "vertical-align": "middle",
        "border": "2px solid black"
    },
    "click": function() {
        alert("clicked");
    }
}));
```

24. **(3 points)** Write one or two paragraphs relating a point from the course to a principle from SCI.