

Name KEY

ID Number \_\_\_\_\_

## CMSC 122 - Final Exam

Fall 2019

200 Points

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## Part 1 – Short Answers (2 points each)

1. Circle just the closing tag of the following HTML element: `<h1> Final Exam </h1>`
2. Circle the one tag that should not be in this group: `<ol>`, `<tr>`, `<li>`, `<ul>`, `<dl>`, `<dd>`, `<dt>`
3. Circle the only TRUE statement.

`<table>` will have a border by default

HTML should be used to add presentation to a document.

The font size of text in a `<h6>` will be bigger than a `<h1>`

In HTML there is both a `<style>` tag and a `style` attribute.

4. What does `<div>` do? **Generic area/container/division to hold other tags**
5. What does `<br>` do? **line break, go to a new line**
6. What is the purpose of the html `<fieldset>` tag?

**Group tags in a form (like text box, buttons, etc). Get a border around them**

7. Write an HTML comment that says: Final Exam. `<!--Final Exam -->`
8. Write a CSS comment that says: Final Exam. `/*Final Exam */` **(//Final Exam not ok)**
9. The abbreviation CSS stands for **Cascading style sheets**

10. Circle just the declaration in this CSS rule: `h1{color: red;}`
11. Circle just the selector in this CSS rule: `h1{color: red;}`
12. Circle just the property in this CSS rule: `h1{color: red;}`
13. Circle just the property value in this CSS rule: `h1{color: red;}`
14. In CSS, what character is used for the universal selector? **\***

15. The four sections in the CSS box model are content, margin, border and **padding**

16. What type of CSS selector is `a:visited`? **pseudo-class**

17. Assume the following JavaScript code:

```
var num = 7;
var x = --num;
alert(x);
```

What will display in the alert box? **6**

18. Assume the following JavaScript code:

```
var num = 7;
num *= 2;
var x = num++;
alert(x);
```

What will display in the alert box? **14**

19. What is the keyword that is used to exit a loop? **break**

20. What is the term used in recursion to specify the case where you don't need recursion and can simply return an answer? **base case**

## Part 2 – Short Answers (3 points each)

21. Assume you have an image called terrapin.jpg in the same folder as your HTML file. Show the HTML code you would write to make the image show up.

`` (If they have alt attribute it is ok)

22. Write the HTML code, so that when you click on the word UMD, it goes to the UMD website(www.umd.edu).

`<a href="http://www.umd.edu">UMD </a>`

23. Give any 2 reasons given in class as to why an external style sheet is preferred when using CSS.

**Any 2 is ok: separate CSS/HTML, code reuse, easier to maintain, faster download/load, change style keep HTML**

24. Given the code below, how many alert boxes with Hello will show up? **one**

```
var myVar1 = 10;
if (myVar1 < 20 )
    alert("Hello");
else if (myVar1 < 30)
    alert("Hello");
else
    alert("Hello");
```

25. Given the code below, how many alert boxes with Hello will show up? **Three**

```
var myVar1 = 10;
if (myVar1 < 20 )
    alert("Hello");
if (myVar1 < 30)
    alert("Hello");
alert("Hello");
```

26. Given:

```
var myVar1 = [7,8,9];
var myVar2 = myVar1;
for (var i = 0; i < myVar2.length - 1; i++){
    myVar2[i] = 0;
}
alert(myVar1);
```

What will the alert box display? **0, 0, 9**

27. What is the most obvious flaw with this code? (You can assume that it has been correctly placed in the `<script>` element in an html document).

```
var count = 0;

while(count < 5)
{
    alert("hello");
}
```

### Infinite loop

28. Given the code below, how many alert boxes with Hello will show up? **25**

```
for (var i= 0; i < 5; i++)
{
    for (var j= 0; j < 5; j++) {
        alert ("Hello");
    }
}
```

29. Given the code below, how many alert boxes with Hello will show up? **one**

```
var x =-1;
do{
    alert("Hello");
}while (x > 0);
```

30. Given:

```
function example1(myArray) {
    myArray[0]=100;
    return;
}
var myVar=[1,2,3];
myVar = example1(myVar);
alert(myVar);
```

What will the alert box display? **undefined**

31. Given:

```
function example2(myArray) {
    for (var i =0; i<myArray.length; i++)
    {
        myArray[i]=0;
    }
}
var myVar=[1,2,3];
example2(myVar);
alert(myVar);
```

What will the alert box display? **0, 0, 0**

32. Given:

```
function example3(myNum) {
  myNum = 10;
  return myNum;
}
var myVar= 20;
example3(myVar);
alert(myVar);
```

What will the alert box display? **20**

33. Given:

```
function example4(myArray) {
  myArray = [4,5,6];
  for (var i =0; i<myArray.length; i++)
  {
    myArray[i]=0;
  }
}
var myVar=[1,2,3];
example4(myVar);
alert(myVar);
```

What will the alert box display? **1, 2, 3**

34. Given the code below, how many alert boxes with Hello will show up? **Two**

```
var num = 2;
switch(num)
{
  case 1:
    alert("Hello");
    break;
  case 2:
    alert("Hello");
  default:
    alert("Hello");
}
```

35. Given the code below:

```
var myArray =[5,7];
myArray.push(20);
myArray.pop();
myArray.shift();
myArray.unshift(40);
alert(myArray);
```

What will the alert box display? **40, 7**

36. Convert 60 into octal (no calculators allowed).

**74**

37. Convert 60 into hexadecimal (no calculators allowed).

**3C**

38. Your friend wants to make a web application that allows a user to order a pizza. He wants to offer 10 different toppings, and he plans to use radio buttons. However, you think he should use checkboxes instead. Explain why?

**checkboxes allow you to pick more than 1 topping**

39. Given:

```
function mystery(x){
  if (x > 0)
    return x + mystery(x - 1);
  else
    return 0;
}
alert(mystery(5));
```

What will the alert box display? **15**

40. Given:

```
function mystery2(x, y) {
  if (y > 0)
    return x * mystery2(x, y-1);
  else
    return 1;
}
alert(mystery2(3,4));
```

What will the alert box display? **81**

**Part 3 – CSS (4 points each)**

**USE THE FOLLOWING HTML CODE TO ANSWER QUESTIONS 41 to 43**

```
<body>
  <h1> CMSC 122 </h1>
  <p id="summary"> We learned HTML, CSS, and JavaScript </p>
  <h2> Our Projects </h2>
  <p class ="c1"> We made webpages </p>
  <p class ="c1"> We learned JavaScript </p>
  <h2> JavaScript </h2>
  <div>
    <p> variables </p>
    <p id="decision"> if, else, and switch </p>
    <p> while, for, do while </p>
  </div>
  <pre class ="c1">Have a good break</pre>
</body>
```

41. Write **one** CSS rule that uses color to **only** make blue the p with the text We learned HTML, CSS, and JavaScript. Just write the rule, you can assume the CSS file is already linked with the HTML.

```
#summary { color : blue; }
```

*For questions 42-43, the output of the HTML code is shown (without any CSS applied). Assume the **only** CSS rule that will be linked with the HTML is the one listed in the question. Simply circle **every** line that will show up in italics because of the rule.*

42. The CSS rule is:  
div p {font-style: italic;}

**CMSC 122**

We learned HTML, CSS, and JavaScript

**Our Projects**

We made webpages

We learned JavaScript

**JavaScript**

variables

if, else, and switch

while, for, do while

Have a good break

43. The CSS rule is:  
.c1 {font-style: italic;}

**CMSC 122**

We learned HTML, CSS, and JavaScript

**Our Projects**

We made webpages

We learned JavaScript

**JavaScript**

variables

if, else, and switch

while, for, do while

Have a good break

#### Part 4 – Write the code

44 (15 pts). Write the code to make the following list. You don't need to use any HTML attributes. Just write the HTML to make the list.

1. HTML
2. CSS
3. JavaScript
  - if
  - while
  - function

```
<ol>
  <li>
    HTML
  </li>
  <li>CSS
  </li>
  <li>
    JavaScript
    <ul>
      <li>if</li>
      <li>while</li>
      <li>function</li>
    </ul>
  </li>
</ol>
```

45. (18 pts) Write the code to make the following table. The value of the `border` attribute is 1. No CSS, just write the HTML to make the table

CMSC 122		
HTML	CSS	JavaScript
project	Final Exam	quiz
exam		paper

```
<table border = "1">
  <tr>
    <td colspan = "3">CMSC 122</td>
  </tr>
  <tr>
    <td>HTML</td>
    <td>CSS</td>
    <td>JavaScript</td>
  </tr>
  <tr>
    <td>project</td>
    <td rowspan = "2">Final Exam</td>
    <td>quiz</td>
  </tr>
  <tr>
    <td>exam</td>
    <td>paper</td>
  </tr>
</table>
```

48. (15 pts) Write a function called `myCount` with 2 parameters: `myArray` and `num`. You can assume `myArray` is a reference to an integer array and `num` will be an integer. Your function should return the number of occurrence of `num` in `myArray`. If `num` is not in `myArray`, return a 0. Just write the code for the function. The top-level code is given. You cannot use any built-in array methods, you can use the `length` property.

```
<script>
```

```
function myCount (myArray, num)
{
    var sum = 0;
    for (var i= 0; i <myArray.length ; i++)
    {
        if (myArray[i]==num)
            sum++
    }
    return sum;
}
```

```
var arr1 =[5,3,5,5,4,3];
alert(myCount(arr1,5)); //will print 3
alert(myCount(arr1,3)); //will print 2
alert(myCount(arr1,2)); //will print 0
</script>
```

49. (20 pts) Write a function called `mySquare` that will have one parameter, `size`. You can assume the caller of the function will provide a positive integer for `size`. The function will use a nested loop to write out to the webpage a square where each row will have consecutive integers up to and including the row number, and the remaining spots will have a `*` instead of integers. You start your row count at 1, so for a square of size 7, the output of row 5 will be `1 2 3 4 5 * *` (Notice no 6 or 7, but `*` instead). For example, if the call is `mySquare (4)`; The output will be a square of size 4 as seen below:

```
1***
12**
123*
1234
```

```
function mySquare (size)
{
    for (var i= 1; i <=size ; i++)
    {
        document.writeln("<p>");
        for (var j= 1; j <=size ; j++)
        {
            if (j <=i)
                document.writeln(j+ " ");
            else
                document.writeln("* ");
        }
        document.writeln("</p>");
    }
}
```

50. (20 pts) Complete the code below. The webpage should look like this when loaded:

For the main function, write code so if the user clicks on the button, the `displayAlert` function is called. `displayAlert` simply concatenates the word entered in the text box as many times as the word length and displays it with an alert box. For example, if the user enters `cat`, the alert box will display `catcatcat` since the word `cat` has three letters. You can assume the user will enter a word with at least length 1 and then press the button. You cannot use any built-in string methods, you can use the `length` property.

```
<body onload = "main()">

<!-- Add the html code to make the button and text box display -->

<form>

    <input type="text" id="myTextField" value="Enter Word" /><br /><br />
    <input type="button" id="displayAlertButton" value="Display Alert" />

</form>

<script>
//Write code so if the button is pressed, the displayAlert function is called
    function main() {

var displayButtonInHTMLForm = document.getElementById("displayAlertButton");
displayButtonInHTMLForm.onclick = displayAlert; // DO NOT PUT ()

    }
//Write code for the displayAlert function on the next page
```

```
//Code to concatenate and display using an alert box
function displayAlert() {

    var myTextFieldInHTMLForm = document.getElementById("myTextField");

    var textProvided = myTextFieldInHTMLForm.value;
    var str = "";

    for(var i =0; i < textProvided.length; i++)
    {
        str += textProvided;

    }
    alert(str);

}
</script>

</body>
```