SEMESTER 2
2022-2023

CS230FZ
Web Information Processing

Dr. Yuzhong Chen, Dr. Joseph Timoney, Dr. Michael English

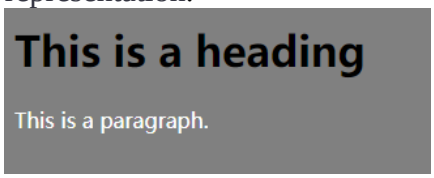
Time allowed: 2 hours
Answer at least three questions
Your mark will be based on your best ***four*** answers
All questions carry equal marks

Instructions

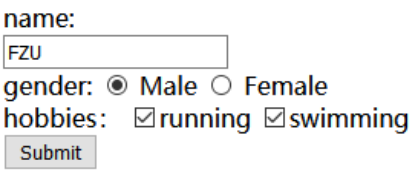
	Yes	No
Log Books allowed		√
Formula Tables allowed		√
Other allowed *(enter details)*		√

General *(Enter Details)*

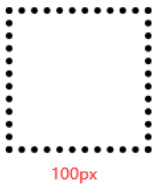
QUESTION 1

(a)	Complete the following HTML/CSS code by filling in the blanks with the appropriate code to achieve the desired appearance as shown in the visual representation.
	 
	
	`<!DOCTYPE html>`
	`<html>`
	`<style>`
	`__1__{ background-color:grey;}`
	`__2__{color:white;}`
	`</style>`
	`<body>`
	`<h1>This is a heading</h1>`
	`<__3__>This is a paragraph.<__4__>`
	`</body>`
	`</html>`
		(6 marks)

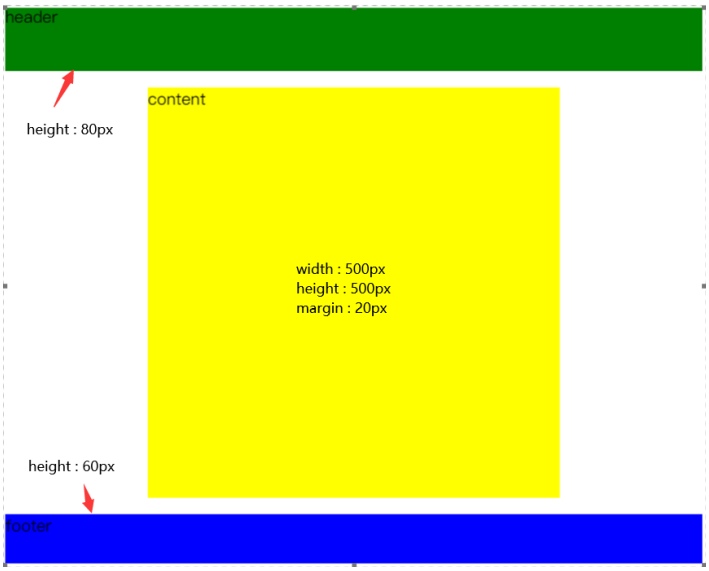
(b)	Complete the following HTML/CSS code by filling in the blanks with the appropriate code to create the desired nested HTML list as shown in the visual representation.
	A. Coffee
	B. Tea
	C. Milk
	▪ pure milk
	▪ yoghurt
	▪ sweet milk
	D. Juice
	`<!DOCTYPE html>`
	`<html>`
	`<body>`
	`<__1__ type="__2__">`
	`<li>Coffee</li>`
	`<li>Tea</li>`
	`<li>Milk`
	`<__3__ style="list-style-type:__4__">`
	`<li>pure mile</li>`
	`<li>yoghurt</li>`
	`<li>sweet milk</li>`
	`<__5__>`
	`</li>`
	`<li>__6__</li>`
	`</ol>`
	`</body>`
	`</html>`
		(9 marks)

c)	Complete the following HTML code by filling in the blanks with the appropriate code to create the form as shown in the visual representation.  `<!DOCTYPE html>` `<html>` `<body>` `<form>` `name: ` `<input type="text" name="name" value="__1__">` ` ` `gender:` `<input type="__2__" name="gender" value="male" checked>` `Male` `<input type="radio" name="gender" value="female"> Female` ` ` `hobbies:` `<input type="__3__" checked >running` `<input type="checkbox" __4__ >swimming` ` ` `<input type="__5__" value="Submit">` `</form>` `</body>` `</html>`	(10 marks)

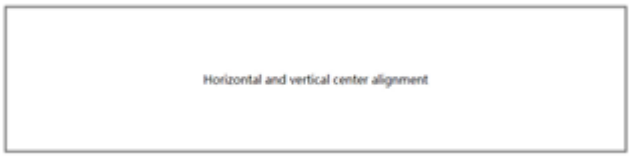
QUESTION 2

(a)	Complete the following CSS code by filling in the blanks with the appropriate code. Your objective is to create a square with dotted borders. The square should have a width and height of 100 pixels, and the border should be 5 pixels wide.
	 
	
	`<style>`
	`.square {`
	`__1__: 100px;`
	`__2__: 100px;`
	`border-width:__3__;`
	`border-style:__4__;`
	`}`
	`</style>`
	`<body>`
	`<div class="square"></div>`
	`</body>`
		(6 marks)

(b)	After running the code within the <script> tag, what will be the content of the <p> tag? `<html>` `<body>` `<p id="demo"></p>` `<script>` `var myNumber = 32;` `document.getElementById("demo").innerHTML =` `"32 = " + " " +` `" Decimal " + myNumber.toString(10) + " " +` `" Hexadecimal " + myNumber.toString(16) + " " +` `" Octal " + myNumber.toString(8) + " " +` `" Binary " + myNumber.toString(2);` `</script>` `</body>` `</html>`	(10 marks)

(c)	Please fill in the appropriate CSS code to achieve the desired web page layout as depicted in the accompanying figure. Assign different background colors to each section: the header should have a green background, the content section should have a yellow background, and the footer should have a blue background.
	
	 
	
	`<style>`
	`/* your code */`
	`</style>`
	`<div class="header"> header </div>`
	`<div class="content"> content </div>`
	`<div class="footer"> footer </div>`
		(9 marks)

QUESTION 3

<table>
<tr>
<td>(a)</td>
<td>Please complete the provided HTML/CSS code to achieve the desired effect. Your task is to use the padding and text-align attributes to center-align the elements both horizontally and vertically. The vertical padding should be set to 70px.
 

<pre>
<style>
.center {
width: 700px;
height: 156px;
text-align:__1__;
padding- __2__:__3__;
   border: 3px solid gray;
}
</style>
<div class="__4__">
    <p>Horizontal and vertical center alignment</p>
</div>
</pre>
</td>
<td>(6 marks)</td>
</tr>
<tr>
<td>(b)</td>
<td>(i) Add the necessary code to the following snippet to achieve the desired output. Create a loop that outputs each element of the string array. The expected result should be displayed in the webpage as shown in the figure.
BMW
Volvo
Saab
Ford
<pre>
<!DOCTYPE html>
<html>
<body>

<p id="demo"></p>

<script>
var cars = ["BMW", "Volvo", "Saab", "Ford"];
var text = "";
var i;
_____1_____; // write your code here(can be multiple
lines)

document.getElementById("demo").innerHTML = text;
</script>

</body>
</html>
</pre>
</td>
<td>(5 marks)</td>
</tr>
</table>

	(ii) Generate HTML heading tags from 1 to 6 using a JavaScript loop. Complete the code snippet to achieve this.
	Title 1
	Title 2
	Title 3
	Title 4
	Title 5
	Title 6
	`<script>`
	`function myFunction() {`
	`  var x ="", i;`
	`  _____1_____;  // write your code here, can be multiple lines`
	`  document.getElementById("demo").innerHTML = x;`
	`}`
	`</script>`
		(5 marks)

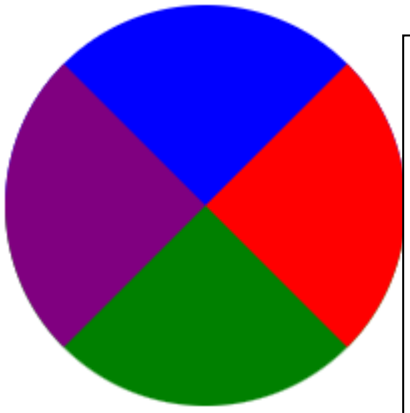
(c)	Please add the necessary code to the following snippet to ensure that the program runs as shown.
	(i)Make the program output the minimum value of the array.
	Result:
	The minimum is: 3
	`<script>`
	`var points = [40, 97, 3, 5, 20, 10];`
	`document.getElementById("demo").innerHTML = myArrayMin(points);`
	`function myArrayMin(arr) {`
	`  var len = arr.length;`
	`  var min = Infinity;`
	`  while (len--) {`
	`  ____1____; // write your code here, can be multiple lines`
	`  }`
	`  return min;`
	`}`
	`</script>`
		(4 marks)

	(ii)Construct a function in the object to get the specified value.
	Michael Jackson
	`<script>`
	`// Create an object:`
	`var person = {`
	`  firstName: "Michael",`
	`  lastName : "Jackson",`
	`  id : 1122,`
	`fullName : function() {`
	`  _____1_____;  // write your code here`
	`  }`
	`};`
	`// Display the data in the object:`
	`document.getElementById("demo").innerHTML = person.fullName();`
	`</script>`
		(5 marks)

QUESTION 4

(a)	Complete the following HTML code by filling in the blanks with the appropriate code to achieve the desired appearance as shown in the visual representation.
	***Text* With Colors**
	This text is in ~~red~~ purple
	This text is 40 pixels high
	`<html>`
	`<body>`
	`<h1><__1__>Text<__2__> With Colors</h1>`
	`<p style="color: purple">`
	`This text is in <__3__>red<__4__> purple</p>`
	`<p style="font-size:40px">`
	`This text is <__5__>40<__6__> pixels high</p>`
	`</body>`
	`</html>`
		(6 marks)

(b)	Complete the following HTML code by filling in the blanks with the appropriate code to achieve the desired appearance as shown in the visual representation. **Ed Sheeran** Edward Christopher Sheeran is an English singer-songwriter.Born in Halifax,West Yorkshire and raised in Framlingham,Suffolk. Sheeran has sold more than 150 million records worldwide,making him one of the world's best-selling music artists. Go to Wikipedia to learn more `<!DOCTYPE html>` `<html>` `<body>` `<h2>Ed Sheeran</h2>` `Edward Christopher Sheeran is an English singer-songwriter.Born in Halifax,West Yorkshire and raised in Framlingham,Suffolk.` ` ` `<__1__="images/es.jpg">` ` ` `Sheeran has sold more than 150 million records worldwide,making him one of the world's best-selling music artists.` ` ` `<!--You should open the url in a new window-->` `<__2__="https://en.wikipedia.org/wiki/Ed_Sheeran"` `3__>` `Go to Wikipedia to learn more <__4__>` `</body>` `</html>`	(8 marks)

(c)	Complete the following CSS code by filling in the blanks with the appropriate code to achieve the desired appearance as shown in the visual representation. Your task is to draw a circle of 50 pixels in radius as shown in the figure below. (You can use **border-*** to achieve it.)
	 
	`<div class="circle"></div>`
	`<style>`
	`.circle {`
	`width: ____1____;`
	`height: ____2____;`
	`border-style: ____3____;`
	`border-width: ____4____;`
	`border-radius: ____5____;`
	`border-____6____: blue red green purple;`
	`}`
	`<style>`
		(11 marks)

QUESTION 5

(a)	Describe the whole process of MVC. Explain the purpose of using MVC. Describe in detail the core components of MVC.	(7 marks)

(b)	Write a JavaScript function 'removeDuplicates' that takes an array as a parameter and returns a new array without any duplicate elements. The order of elements in the new array should be consistent with the original array.
	Requirements:
	● You are not allowed to use built-in array deduplication methods (such as filter, Set, etc.).
	● The function should have high performance and efficiency.
	Example:
	console.log(removeDuplicates([1, 2, 3, 3, 4, 4, 5])); // Output [1, 2, 3, 4, 5]
	console.log(removeDuplicates([1, 1, 2, 2, 3, 3, 4, 4, 5])); // Output [1, 2, 3, 4, 5]
		(9 marks)

(c)	Implement a JavaScript function 'reverseWords' that takes a sentence as input and returns a new sentence where each word is reversed, while maintaining the order of words in the original sentence. A word is defined as a sequence of non-space characters..
	Requirements:
	● You are not allowed to use built-in string manipulation methods such as split or reverse.
	● The function should have high performance and efficiency.
	Example:
	console.log(reverseWords("Hello world")); // Output: "olleH dlrow"
	console.log(reverseWords("OpenAI Chatbot")); // Output: "niAepO tobhctaC"
		(9 marks)