Write your name on the exam. Write something for every question. Students who do not write something for everything lose out over students who write down wild guesses. You will get some points if you attempt a solution but nothing for a blank sheet of paper. Write something down, even wild guesses. Problems take long to read but can be answered concisely.

<table>
<thead>
<tr>
<th>Question</th>
<th>Maximum</th>
<th>Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>10</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>20</td>
<td></td>
</tr>
</tbody>
</table>
**Question 1 – HTML**

a) Briefly describe the function of 5 of the following 7 HTML tags: `<h3></h3>`, `<pre></pre>`, `<br>`, `<tt></tt>`, `<ol></ol>`, `<input>`, `<form></form>`

- `<h3></h3>` is used for a level 3 heading (smaller than H1 and H2, larger than text).
- `<pre></pre>` is used for preformatted text (browser preserves indentation and newlines in HTML source, uses monospaced font).
- `<br>` introduces a line break into the page.
- `<tt></tt>` asks browser to use monospaced font (a.k.a. teletype or typewriter text).
- `<ol></ol>` is used for ordered (numbered) lists.
- `<input>` is used for various types of controls (text fields, checkboxes, radio buttons) the user can enter information with.
- `<form></form>` is used as a container for input controls that are submitted to the server together.

b) Show how HTML tables can be used to achieve the text layout on the right (there is more than one valid solution). Do not worry about the width and height of cells; just give a table that produces this relative alignment of the text in the five cells.

This type of layout can be accomplished either using the colspan and rowspan attributes, or by adding tables inside cells of other tables (this second method does not work for all layouts).

```html
<table>
  <tr>
    <td rowspan="3">Text 1</td>
    <td>Text 2</td>
    <td rowspan="2">Text 4</td>
  </tr>
  <tr>
    <td>Text 3</td>
  </tr>
  <tr>
    <td colspan="2">Text 5</td>
  </tr>
</table>
```

Text 1 | Text 2 | Text 4
---|---|---
   | Text 3 |   
   |   | Text 5
**Question 2 – JavaScript**

a) What does the keyword `this` refer to if used inside the method of an object? What does it refer to if it is used outside an object method?

Inside an object’s method it refers to the object, outside it refers to the “global object” (the `window` variable also points to it).

b) What happens if you assign to an object property that does not exist (the property)? What happens if you read an object property that does not exist?

When assigning to an inexistent property, the property is created and the value is stored in it. When reading an inexistent property, the `undefined` value is read.

Note: reading an inexistent property does not throw an exception, but using the `undefined` value may cause errors later in the script.

c) When does the JavaScript code between `<script></script>` tags get executed?

It is executed as the page is being rendered. The HTML elements from after the tag will not be there in the `document` yet.

Note: In JavaScript, defining a function is equivalent to assigning a function object to a variable (with the same name as the function). Thus while the function may be executed later, say by an event handler, the binding of the code to the name of the function happens when the page is loaded.

d) Why is it that you shouldn’t use `document.write()` inside an event handler?

`document.write()` will insert text (or HTML markup) into the page if used inside a `<script></script>` tag in the body of the document. By the time an event handler is executed the page is already built and calling `document.write()` will overwrite the page (which is probably not what you want).

e) Give the name of a DOM function you can use to find a specific element of an HTML document.

`getElementById()`