

Web Languages and Technologies

Faculdade de Engenharia da Universidade do Porto
12th January 2015

Duration: 2h / With Consultation

Name: _____

Number: _____

1. Consider the following HTML code:

```
1 <article class="post" id="first">
2   <header>
3     <h1>Title</h1>
4   </header>
5   <p>First paragraph</p>
6   <p>Second paragraph</p>
7   <footer>
8     <p>This is a footer</p>
9   </footer>
10 </article>
```

And the following CSS code:

```
1 article p {color: red;} /* R1 */
2 article > p {color: blue;} /* R2 */
3 .post p:first-child {color: green;} /* R3 */
4
5 p + p {color: yellow;} /* R4 */
6 #first footer {color: magenta;} /* R5 */
7 .post {color: cyan;} /* R6 */
```

1½ val.

(a) Calculate the specificity of each one of the rules:

R1	R2	R3	R4	R5	R6

1 val.

(b) Taking into consideration only the rules **R1 to R3**, indicate the color of each one of the texts in the page:

Title	1st Par	2nd Par	Footer

1 val.

(c) Taking into consideration **all** the rules, indicate the color of each one of the texts in the page:

Title	1st Par	2nd Par	Footer

2. Consider the following *string*: Peter Piper picked a peck of pickled peppers.

For each one of the regular expressions shown below, underline the first match:

$\frac{1}{2}$ val.

(a) `/pi.*ck/`
Peter Piper picked a peck of pickled peppers.

$\frac{1}{2}$ val.

(b) `/[a-k]{3}/`
Peter Piper picked a peck of pickled peppers.

$\frac{1}{2}$ val.

(c) `/(\w{4})\.\\1/+`
Peter Piper picked a peck of pickled peppers.

$\frac{1}{2}$ val.

(d) `/ck\b/`
Peter Piper picked a peck of pickled peppers.

$\frac{1}{2}$ val.

(e) `/(pick|peck)(?=1)/`
Peter Piper picked a peck of pickled peppers.

$\frac{1}{2}$ val.

(f) `/(?<=pep)per/`
Peter Piper picked a peck of pickled peppers.

3. Consider the following HTML code excerpt:

```
1 <input name="color" type="text" value="#336699">
2 <button id="copy" value="Copy">
3 <button id="send" value="Send">
4 <div class="box"></div>
```

Also consider that the complete page can have other *input*, *button* and *div* elements. Write the *jQuery* code needed so that:

1 val.

(a) When the *copy* button is pressed, the background color of the *div* changes into the color specified in the *input* value.

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2 val.

- (b) When the *send* button is pressed, the background color of the *div* is sent, in a variable called *color*, as an *Ajax* request to the address *http://www.coloranalyzer.com/*. The *div* text should change into the result of the request. Considerer that the result, in JSON, has the following format: `{"result": "good"}`.



(Continues in the other side...)

2½ val.

4. Create a well-formed and valid XML document according to the following XSD:

```
1 <?xml version="1.1"?>
2 <xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema">
3   <xs:element name="car">
4     <xs:complexType>
5       <xs:sequence>
6         <xs:element name="plate" type="plate"/>
7         <xs:element name="make" type="xs:string"/>
8         <xs:element name="model" type="xs:string"/>
9       </xs:sequence>
10      <xs:attribute name="age" use="required" type="xs:number"/>
11    </xs:complexType>
12  </xs:element>
13  <xs:element name="cars">
14    <xs:complexType>
15      <xs:sequence>
16        <xs:element ref="car" minOccurs="2" maxOccurs="unbounded"/>
17      </xs:sequence>
18    </xs:complexType>
19  </xs:element>
20  <xs:simpleType name="plate">
21    <xs:restriction base="xs:string">
22      <xs:pattern value="\d{3}-[A-Z]{3}"/>
23    </xs:restriction>
24  </xs:simpleType>
25 </xs:schema>
```

