Internet Technologies
Some sample questions for the exam

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Questions

1. Is the number of hostnames (websites) typically larger, equal or smaller than the number of hosts running an http daemon? Explain why.
2. What is the main difference, with respect to the network topology, between a telephone network and Internet?
3. List the operations performed by the browser, the DNS and a web server A when you request on your browser a page located on web server A.
4. Say what are well formed URL in the following list of items:
   - http://www.unibz.it/~ricci
   - file:///C:/ricci/Desktop/students.doc
   - mailto:ftorn@mit.edu
   - telnet://www.chl.it:80

1 Larger, may web sites can be hosted on the same physical host.

But it is also true that in a web farm many physical machines will serve the same hostname (e.g. google).

2 The telephone line is typically not redundant, i.e., there is just one path from one phone to another phone. So is something is broken in the middle the communication cannot be established.

3 see slide (lect2 5-17-19)

4 all of them

Questions

5. What colour is #000000? And #ff0000?
6. What tag will produce the largest heading: <h2>, <h3>, <head>?
7. What types of information is contained in the head element of an HTML file?
8. How the browser will use a meta element like this: <meta name="keywords" content="servlet, jsp, beans"/>
   - What kinds of web applications are using the meta elements of web pages?
9. Write the order of priority of CSS styles: Inline, External sheets, Internal (in the head element), Browser (in descending order of priority).

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5 Black and red

6 <h2>

7   see slides (lect2 42-43-44)

8 The browser will not do anything; the web crawler of a search engine will look at that and use this information for indexing the page.

9 Inline, Internal, External, Browser

Questions

10. Which is the correct CSS syntax?
    - {body;color:black}
    - {body:color=black(body)}
    - body:color=black
    - body {color: black}
11. Why a network protocol is organized as a stack of layers?
12. Can a host have more than one IP number? Explain why.
13. Is the HTTP protocol belonging to the "Network" layer? What is the primary function of the "Network" layer?
14. What is the scope of a variable declared in a javascript function? Can a second function access such a variable? Can a variable be shared by two different functions?

10 4

11 *To reduce protocol complexity and enable the replacement of single layers (e.g. a wifi and Ethernet).*

12 yes this is the number of network interfaces

13 no to the "application" layer. Network layer: control the operation in a subnet (routing packets – addressing -handover between networks)

14 no, in order to be shared it must be defined outside a function

Questions

15. When the init method of an HttpServlet is executed?
16. How you can access the content of a header sent by the client to a servlet (for instance the "Host" header)?
17. If you stop and restart the application server, and then call a JSP; explain under which conditions this JSP (called after restart) will be translated into a servlet and then compiled.
18. Build a DTD that will validate the following xml file:

```
<Curriculum>
    <Course Title="IT" Lect="F.Ricci">
        <Lecture>Introduction</Lecture>
        <Lecture>HTML</Lecture>
        <Lecture>XML</Lecture>
    </Course>
    <Course Title="ATIS" Lect="F. Ricci">
        <Lecture>ACF</Lecture>
        <Lecture>Personalization</Lecture>
        </Course>
</Curriculum>
```

15 *Just the first time that the servlet is executed after the server start.*

16 *request.getHeader("host");*

17 *only if the JSP has been modified after the server has been stopped*

18

<?xml version="1.0" encoding="UTF-8"?>

<!ELEMENT Curriculum (Course+)>

<!ELEMENT Course (Lecture+)>

<!ATTLIST Course

Title CDATA #REQUIRED

Lect CDATA #REQUIRED>

<!ELEMENT Lecture (#PCDATA)>