Exam Questions
Internet Applications, ID1354

This document lists possible exam questions. The exam may contain one or two (but not more) questions that are not listed in the document.

Make sure to explain and motivate your answers thoroughly

1 Architecture, Protocols, Tools, UI Design (Lecture 1)

1. Thoroughly describe the Model-View-Viewmodel (MVVM) architecture. What is the reason to introduce the `viewmodel` layer? (5p)

2. Thoroughly describe a three-tier architecture. (5p)

2 HTTP

3. Thoroughly explain the following, regarding HTTP cookies. (5p)

   a) How is a cookie represented in an HTTP request and an HTTP response?

   b) What makes an HTTP responses, from a server to a browser, include a cookie?

   c) What makes an HTTP request, from a browser to a server, include a cookie?

3 HTML

4. Thoroughly explain the purpose of HTML. Also explain why HTML shall not be used to control the layout of a web page. (5p)

5. Thoroughly explain the difference between *block* and *inline* elements. Give two examples of block elements and two examples of inline elements. (5p)

6. Thoroughly explain the purpose of using a `div` and a `span` HTML element. (5p)

7. Thoroughly explain why it is appropriate to validate HTML documents. (5p)

8. Thoroughly explain the difference between the following two links in a HTML document. (5p)

```
<a href="persons">persons</a>
<a href="/persons">persons</a>
```

9. Thoroughly explain the difference between HTML and XHTML. What are the reasons to use either of them? (5p)

10. What are HTML5 *semantic elements*? What is the motive for using them? How does the browser place them when rendering a page? (5p)

4 CSS

11. Thoroughly explain why it is appropriate to validate CSS style sheets. (5p)

12. Thoroughly explain what a *reset stylesheet* is, and what motive there is for using one. (5p)

13. Thoroughly explain why it is preferred to use an *external stylesheet* instead of an *internal style sheet* or an *inline style sheet*. Can you think of any occasion where it would be motivated to use an *internal style sheet* or an *inline style sheet*? Motivate the answer. (5p)

14. Thoroughly explain what a *responsive design* is, and how to implement a responsive design. You do not have to write any code (but you may if you wish). (5p)

15. *Note! This will be a multiple choice question where you shall indicate, without motivation, which of several proposed answers is correct.*

    Which of the images below illustrates how the following HTML and CSS fragments are rendered in a browser. Both HTML and CSS have passed validation. Answer only with the letter (a-d) of the correct answer, do *not* explain your answer. (5p)

    Fragments will be given at exam. The HTML will contain `div` elements with `id` and `class` attributes. The CSS might contain anything related to static, fixed, relative and absolute positioning; float and clear; margin and padding; the `background-color` property.

16. *Note! This will be a multiple choice question where you shall indicate, without motivation, which of several proposed answers is correct.*

    Which of the following elements is selected by the CSS selector below? Answer only with the letter (a-d) of the correct answer, do *not* explain your answer. (5p)

    Selector will be given at exam. It may include any combination of *element*, *id* and *class* selectors. *Child* and *descendant* combinators may be used.

17. Thoroughly explain what the `em` unit of a CSS property value means, and why it is useful. (5p)

5 JavaScript

18. Thoroughly explain the JavaScript object model. Your answer shall explain *prototypes*, *properties*, *functions* and *constructors*. (10p)

19. Thoroughly explain what hoisting is and give an example. You do not have to write code, but you may if you wish. (5p)

20. Thoroughly explain what the Document Object Model, DOM, of an HTML document is. Also give an example illustrating when and how it can be appropriate to use the DOM. Explain in words, you do not have to write any code. (5p)

21. *Note! This will be a multiple choice question where you shall indicate, without motivation, which of several proposed answers is correct.*

    When is the following JavaScript code executed, and what will happen when it is executed? Answer only with the letter (a-d) of the correct answer, do *not* explain your answer. (5p)

    Code will be given at exam. The code may and may not use jQuery. The code might register an event handler for one or more DOM elements, there might be event bubbling. The handler might change some property of the DOM. Parameters may be passed to the event handler.

22. Thoroughly explain what reasons there are to use a JavaScript framework, like Knockout. Are there any reasons not to use such a framework? You must explain in detail, it is not enough to state that a framework simplifies coding. (5p)

23. Thoroughly explain how AJAX works and what reasons there are to use it. (5p)

6 PHP

24. Thoroughly explain how an HTML form generates HTTP parameters, and how those parameters can be read in a PHP program on the server. Your answer shall explain what is required to make the form pass a certain value as a parameter, how the parameter is represented in the HTTP request, and how the server code can read it. You do not have to write any code (but you may if you wish).

25. Thoroughly explain the difference between the operators == and ===. Which one is preferred and why? (5p)

26. Thoroughly explain what a closure is and give an example. You do not have to write code, but you may if you wish. (5p)

27. Thoroughly explain what an anonymous function is and give an example. You do not have to write code, but you may if you wish. (5p)

28. Thoroughly explain what reasons there are to use a PHP framework. Are there any reasons not to use such a framework? You must explain in detail, it is not enough to state that a framework simplifies coding. (5p)

29. It is often stated that PHP and HTML code should not be mixed in the same file. Thoroughly explain why that is so, and also explain how it can be avoided. (5p)

30. Thoroughly explain how HTTP sessions are implemented in PHP. Give an example of an application where sessions are required, also explain why sessions are required in that application. (5p)

31. Thoroughly explain *cross site scripting* (XSS) and what an attacker can achieve by using XSS. Also explain a method to prohibit XSS attacks. (10p)

32. Thoroughly explain what *impersonation* is and give two examples of how an attacker can impersonate a legitimate user. Thoroughly explain what can be done to stop those two attacks. (10p)

33. A browser makes an HTTP request to `http://www.myserver.se/abc/def`. The server uses a framework that maps this URL to the file `classes/Handlers/ghi.php`, which includes `views/jkl.html`. The view that is now displayed in the browser is the HTML code in `views/jkl.html`.

    a) Which URL is now displayed in the browser's address field? Motivate! (5p)

    b) The layout of `views/jkl.html` is specified in `resources/css/mno.css`. `jkl.html` contains a link to `mno.css`, what shall be the path in that link? Motivate you answer. (5p)

7 XML

34. Thoroughly explain the difference between DOM and SAX processors. What reasons are there to use either of them? (5p)

35. Thoroughly explain the purpose of writing an XML schema? (5p)

36. Thoroughly explain the purpose of using XML namespaces? (5p)

8 SQL, Databases, .NET

There will be no such questions.