COMM049/4/LSA 2014/2015

©

UNIVERSITY OF SURREY

Faculty of Engineering & Physical Sciences

Department of Computing

Undergraduate Programmes in Computing

Module COMM049; 15 Credits

HTML5 and CSS3 for Mobile Applications

FHEQ Level 7 (MSc) Examination

Time allowed: Two hours

Late Summer Assessment 2014/2015

Answer all three questions

Each question carries 33 marks.

Where appropriate the mark carried by an individual part of a question is indicated in square brackets [ ].
Approved calculators allowed

1: This question covers general aspects of rich client applications.

(a) JavaScript is used extensively on Web applications and one of the most important usages is input validation. Explain in a few words why validating input data with JavaScript is important. [5 marks]

(b) Ajax is a popular technique in Web applications that allows developers to build rich Web applications.

(i). Define Ajax and explain what the main functions are. [5 marks]

(ii). What is the JavaScript object that allows for the implementation of Ajax? [1 mark]

(iii). Explain as pseudocode or your own words, the main steps needed for a Web application to make an Ajax call to the server and retrieve the response. [5 marks]

(c) Another technology used to build rich client applications is jQuery. Explain what is jQuery and how it supports the Unobtrusive JavaScript concept. [10 marks]

(d) Cookies have traditionally been used in web applications for session management, personalization and tracking. What are the disadvantages of using cookies and what alternative technique does the course recommend? [7 marks]

Total [33 marks]

SEE NEXT PAGE

2: This question covers a range of general aspects of developing web applications.

(a) What are the five key technologies that make up *Ajax*? Briefly describe the role each technology plays within a rich client interface.

[10 marks]

(b) *Ajax* supports an "asynchronous" interaction style between client and server. Briefly explain what this means and why it can provide an improved user experience for interactive web applications.

[4 marks]

(c) Suppose we want to "dynamically" add some content into a document. In the following example (a little contrived, for simplicity), we *intend* that the text "to the world of JavaScript" be added just below the text "Welcome".

(i) What will actually happen if a web browser loads the following code? [4 marks]

(ii) How would you modify the code in order to ensure the intended behaviour actually occurs? Explain your changes (You do not need to rewrite the whole example. Just be clear about what needs to be modified and where any additional lines need to be placed.) [6 marks]

```
<html>
     <head>
       <script type="text/javascript">
          function GreetPlayer() {
             document.write("to the world of
                                          JavaScript");
          }
       </script>
     </head>
     <body onload=GreetPlayer()>
          <h1>Welcome</h1>
     </body>
   </html>
```

(d) Write a JavaScript statement to accomplish each of the following tasks:

(i) Declare variables `sum` and `x`.

(ii) Assign `1` to variable `x` and `0` to variable `sum`.

(iii) Add variable `x` to `sum` and assign the result to `sum`.

(iv) Print `"The sum is: "` followed by the value of the variable `sum`. to a "`div`" element whose identifier is "`result`".

[9 marks]

Total [33 marks]

SEE NEXT PAGE

3: This question covers a range of aspects of designing mobile web applications.

(a) Pixels (px) is often used as a unit of measurement for sizing html elements and fonts. The course recommends to alternative units of measurement. What are they, and what are their advantages?

[11 marks]

(b) When designing a new web app, I could review all the current smartphones and tablets and provide media queries to size the layout for each and every one. Why is that not a good idea, and what strategy should I use instead?

[5 marks]

(c) As well as media queries, quite a lot of useful support for responsive web design is being added into the HTML5 and CSS3 standards. Describe in detail two additional features that were recommended in the course.

[17 marks]

Total [33 marks]

END OF PAPER

INTERNAL EXAMINER: Prof. Paul Krause
EXTERNAL EXAMINER: Prof. Mahesan Niranjan