

COMM049/6/Semr 1 2014/2015

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**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

Semester 1 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

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- 1: The course argues that with recent developments in HTML5 and CSS3, there is no need to use native code for mobile applications. Instead, a single application should be developed for the web in the large, taking into account that it may be viewed from one of a range of devices (TV, desktop, laptop, tablet, smartphone, ...). Discuss in detail and comprehensively whether you think this is a fair assessment, using examples from the features that have been presented in the course.

[33 marks]

**Total [33 marks]**

SEE NEXT PAGE

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

- (a) Which answer best categorises a JavaScript (JS) array? (Write down your answer in the answer book.)
- (i) A variable
  - (ii) An object
  - (iii) A method
  - (iv) A function
- [1 mark]
- (b): External JS scripts can be linked into more than one page. True or false? [1 mark]
- (c): External JS scripts must include the <script> tag. True or false? [1 mark]
- (d): Provide a one sentence succinct answer to the question of: “What is HTML5 for?” [1 mark]
- (e). An HTML element has three components. What are they? Illustrate your answer with an example and identify the components by name. [3 marks]
- (f). Draw out a valid DOM tree for the simplest possible valid HTML5 document, with a <body> containing just one paragraph element. [4 marks]
- (g). The course recommends specifying “UTF-8” as the character encoding that is used in an HTML document.
- (i) Why is it important to specify the character encoding? [3 marks]
  - (ii) What is the significance of “UTF-8”? [2 marks]
  - (iii) Why do you think it should be important to specify the character encoding as early as possible in an HTML document? [1 mark]
- (h). Use of the <i> and <b> elements were discouraged in HTML 4.01. However, they are now back in HTML5. What are the HTML5 semantics of <i> and <b>, respectively? [4 marks]

QUESTION 2 CONTINUES ON NEXT PAGE

- (i). Look at the HTML in figure 1. The intention is that there be a single entry point into the document outline (the <div> with id="header").
- (i) Why is there a problem with this HTML 4 style of syntax? [2 marks]
  - (ii) Using the HTML5 semantic elements <header> and <article>, rewrite the html without the use of <div> elements to retain all the level 1 headings, but have a document outline with a single entry point. [4 marks]
  - (iii) Explain why this works now. [2 marks]

```
<body>
  <div id="header">
    <h1>I <em>think</em> this is the root</h1>
  </div>
  <div class="entry">
    <h1>Who are my siblings?</h1>
  </div>
  <div class="entry">
    <h1>Am I my brother's keeper?</h1>
  </div>
</body>
```

Figure 1.

- (j). Identify four best practices that the course recommends for improving accessibility of a web site. [4 marks]

**Total [33 marks]**

SEE NEXT PAGE

3: This question covers a range of aspects of developing with jQuery.

- (a) Which of the following statements are true:  
(i) jQuery is a JSON Library;  
(ii) jQuery is a JavaScript library [2 marks]
- (b) Which well-known syntax is jQuery's method of selecting DOM elements based on? [2 marks]
- (c) What sign does jQuery use as a shortcut for jQuery? [1 mark]
- (d) What does the selector `$( "div" )` select in jQuery?  
(i) All `div` elements  
(ii) The first `div` element [2 marks]
- (e) What is the correct jQuery code to set the background colour of all `p` elements to red?  
(i) `$( "p" ).style( "background-color", "red" );`  
(ii) `$( "p" ).change( "background-color", "red" );`  
(iii) `$( "p" ).css( "background-color", "red" );`  
(iv) `$( "p" ).layout( "background-color", "red" );` [2 marks]
- (f) Which jQuery method is used to hide selected elements?  
(i) `display(none)`  
(ii) `visible(false)`  
(iii) `hidden( )`  
(iv) `hide( )` [2 marks]
- (g) Which jQuery method is used to perform an asynchronous http request?  
(i) `jQuery.ajaxAsync( )`  
(ii) `jQuery.ajaxSetup( )`  
(iii) `jQuery.get( )`  
(iv) `jQuery.ajax( )` [2 marks]
- (h) What is the correct code for making all `div` elements 100 pixels high?  
(i) `$( "div" ).height = "100"`  
(ii) `$( "div" ).style(height=100)`  
(iii) `$( "div" ).height(100)`  
(iv) `$( "div" ).yPos(100)` [2 marks]

QUESTION 3 CONTINUES ON THE NEXT PAGE

- (i) Consider the static HTML of Figure 2. Suppose that you now import the JavaScript of Figure 2 into the same HTML document.
- (i) Describe from the user's perspective the dynamic behaviour that is now associated with the document (i.e. what the user will see). [5 marks]
- (ii) Explain from a technical perspective how the code in Figure 3 creates the behaviour described in part (i) above. [10 marks]
- (iii) Modify the JavaScript code so that the click function only applies to the paragraph of class "bear" [3 marks]

```
<body>
  <h1 id="myTitle">Some jQuery examples</h1>
  <p id="myParentDiv">The fun starts here:</p>
  <p>And ends here!</p>
</body>
```

Figure 2

```
<script src="jquery-1.8.2.min.js"></script>
<script>
  $(function(){
    $('#myTitle')
    .bind('mouseover', function(event){
      $("<p class='bear'>I have a bear!</p>
      <p>I don't</p>")
      .click(function(){
        alert("I'm a bear!");
      }).end().appendTo("#myParentDiv");
    })
  })
</script>
```

Figure 3

**Total [33 marks]**

END OF PAPER

INTERNAL EXAMINER: Prof. Paul Krause  
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