

# University of St Andrews



## DECEMBER 2016 EXAMINATION DIET

### SCHOOL OF COMPUTER SCIENCE

**MODULE CODE:** IS5103

**MODULE TITLE:** Web Technologies

**EXAM DURATION:** 2 hours

**EXAM INSTRUCTIONS**

- (a) Answer **three** questions.
- (b) Each question carries 20 marks.
- (c) Answer questions in the script book.

**YOU MUST HAND IN THIS EXAM PAPER AT THE END OF THE EXAM.**

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YOU ARE INSTRUCTED TO DO SO.**

1.

(a) Describe the role of the W3C and the process involved in becoming a recommended web standard. [5 marks]

(b) Explain using text or an annotated diagram the process by which a browser displays the following web page.

`https://www.guardian.co.uk/news/japan`

[5 marks]

(c) "The future of the web relies on common standards to support interoperability." Discuss. Your answer should include examples of modern web standards and the role of interested stakeholders. [5 marks]

(d) Discuss 5 significant challenges facing responsive web solutions.

[5 marks]

2.

(a) A number of CSS3 modules are currently under development. Explain how browsers facilitate this, using the style rule below.

```
article {  
  
-webkit-transform: rotate(90deg) scale(1) skew(1deg)  
translate(10px);  
  
-moz-transform: rotate(90deg) scale(1) skew(1deg)  
translate(10px);  
  
-o-transform: rotate(90deg) scale(1) skew(1deg)  
translate(10px);  
  
-ms-transform: rotate(90deg) scale(1) skew(1deg)  
translate(10px);  
  
transform: rotate(90deg) scale(1) skew(1deg)  
translate(10px);  
  
}
```

[10 marks]

- (b) Explain what the CSS below would be used for, and discuss an advantage and a disadvantage of using this technique.

```
@font-face {  
    font-family: myfont;  
    src: url(myfont_light.woff);  
}  
  
h1 {  
    font-family: "Times New Roman", Times, serif;  
}  
  
h2 {  
    font-family: myfont, Helvetica, Arial, sans-serif;  
}
```

[10 marks]

3.

- (a) The W3C, WAI and WCAG 2.0 are associated with web accessibility. Discuss their relationship, and illustrate how this could inform a business case for the implementation of web accessibility within an educational institution. [10 marks]
- (b) Examine the following html page and linked style sheets. Explain in terms of inheritance, how each element would be displayed by a printer. [10 marks]

index.html

```
<!DOCTYPE html>
<head>
  <title>Design and Semantics
  </title>
  <link href="styles.css"
    rel="stylesheet"/>
  <link href="printer.css"
    rel="stylesheet" media="print"/>
</head>
<body>
<header>
<h1>The role of standards</h1>
<div id="css">
</div>
</header>
<section>
<h2> Meaning</h2>
<p> An understanding of <strong>
  meaningful markup </strong> and CSS
  is advisable. More information visit
  <a href="http://www.dow.com">Dow's
  online tutorial site</a>
</p>
<h3>Presentation</h3>
<p>Design logic using CSS</p>
</section>
<article>Web standards are core to web
  accessibility</article>
<footer><p>Guide available via our<a
  href="http://www.web.ac.uk/guide.html
  ">CSS Guide</a></p>
</footer>
</body>
</html>
```

page-styles.css

```
body{
  color: blue;
  background-color: yellow;
  font-family: Tahoma, Geneva, sans-
  serif;}
header{
  background-color: rgba(255, 0,
  0,.75);}
h2 {
  font-family: calibri;
  text-shadow:5px 5px 5px #000000;}
p {
  color: brown;
  font-size: small;}
article{
  background-color: red;}
```

print.css

```
body {
  color : #000000;
  line-height: 1.5;
  background : #ffffff;
  font-size : 12pt;
}
@page { margin: 10%;
}
a:after {
  content: " (" attr(href) ")";
}
#css{
  display : none;
}
```

4.

Examine the following mark-up, designed to collect voter details on a voting page.

```
<form action="voting.php" method="post" name="formvote"
id="formvote">

<fieldset>

<p> Your Details </p> <p>Please supply a username, password,
your voting email address and the date, when finished confirm
your voting choice. </p>
<p>
    Voter Identifier: (required)
    <input pattern="[0-9][A-Z]{3}" name="vname"
        id="vname" type="text" autofocus required>
</p>
<p>
    Voter Password:
    <input name="vpsswd" id="vpsswd" type="password" required>
</p>
<p>
    Email: (required)
    <input type="email" name="vemail" id="vemail"
        placeholder="Enter a valid email address" required> </p>
<p>
    Date of Vote:
    <input type="date" name="vdat" id="vdat" tabindex="3"></p>
<p>
    <input name="status" type="hidden" id="status"
        value="unconfirmed"> </p>
<p>
    <input name="submit" type="submit" id="submit"
        value="Vote Now"></p>
</fieldset>

</form>
```

- (a) Describe, using text or an annotated diagram, what the form would look like when rendered in a browser and what happens when the form is submitted.

[10 marks]

- (b) Explain 5 accessibility features you would add to the voting page in order to comply with the POUR principles of WCAG 2.0. Use the source code to illustrate your answer.

[10 marks]

**\*\*\* END OF PAPER \*\*\***