

S228/204

DUBLIN INSTITUTE OF TECHNOLOGY  
KEVIN STREET, DUBLIN 8

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**BSC IN COMPUTER SCIENCE**

**YEAR 2**

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**SUMMER EXAMINATION 2003**

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**WEB DEVELOPMENT**

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**THREE (3) HOURS**

ATTEMPT **QUESTION 1** AND ANY **THREE** OTHER QUESTIONS

ALL QUESTIONS CARRY EQUAL MARKS.

## Section A

### Compulsory

1. Attempt any 5 of parts (a), (b), (c), (d), (e) and (f).

- (a) (i) In order to construct a table using HTML, you are required to use at least three different tags. Identify these tags and their use.

**(2 marks)**

- (ii) Give the HTML code necessary to create the nested set of tables shown below.

**(3 marks)**

North	
South West	South East

- (b) (i) Explain the function of image maps in web pages.

**(1 mark)**

- (ii) Using sample HTML code, produce an image map with three areas, each of which uses a different shape, and apply this map to an image named "exam.gif" that has a width of 400 and a height of 400.

**(4 marks)**

- (c) (i) What is the purpose of Cascading Stylesheets?

**(1 mark)**

- (ii) Explain the difference between
- ◆ External style sheet
  - ◆ Inline style sheet

**(2 marks)**

- (iii) What is the difference between the effect of the following two pieces of CSS code?

**(2 marks)**

```
<style type="text/css">
  p, b {
    color: green;
  }
</style>
```

```
<style type="text/css">
  p b {
        color: green;
      }
</style>
```

- (d) (i) Why is it advisable to use HTML comment tags to comment out the code between `<style>` and `<script>` tags? **(1 marks)**
- (ii) Write a simple HTML page that will redirect the user to a new page called "ie.html" if the browser they are using is Internet Explorer, and will redirect to a page called "net.html" if the browser they are using is Netscape. **(4 marks)**
- (e) (i) List two JavaScript events that can be associated with a button, and describe the circumstances under which they will be triggered. **(1 marks)**
- (ii) Write a short HTML page that contains an image and some JavaScript. The user should be prompted to enter their name whenever the mouse passes over the image. Their name should then appear in an alert box that pops up every thirty seconds. **(4 marks)**
- (f) Explain in detail the differences between XML and HTML. In your answer you should discuss validity and well-formedness and use code samples. **(5 marks)**

## Section B

### Attempt any THREE Questions

2. According to the Lazar Web Development Lifecycle Model, there are seven stages involved in developing a web site.

You have been hired by RTÉ, the Irish television and radio broadcaster, to produce a new web site for the organisation.

Discuss in detail each of the seven stages that you should follow, focussing on the deliverables from each stage, and the methods you would use at each stage.

You must justify the choices you make by taking into consideration the nature of the client and the users.

**(25 marks)**

3. (a) In recent years there has been a movement away from the use of frames in web sites, leaving a situation where web developers use tables for the layout of their page instead of frames.

Explain some of the reasons for this change. Using your own experience, discuss whether you agree with this movement away from the use of frames. Justify your opinion.

**(10 marks)**

- (b) Give the HTML code necessary to construct a frameset with three horizontal frames named a, b and c.

**(3 marks)**

- (c) Give the HTML code necessary to change the frame set from part (b) above, to a frameset with a single vertical frame on the left hand side, and three horizontal frames on the right hand side.

**(4 marks)**

- (d) Show how a HTML link in the page in the left hand frame can open a page
- ◆ in the frame named a
  - ◆ in the whole browser window, replacing the frame structure
  - ◆ in a new browser window.

**(3 marks)**

- (e) Show how JavaScript can be used to open a new browser window, with a named page displayed in it. The new window should have a width of 200, a height of 200, a location bar and a status bar.

**(5 marks)**

4. (a) List and explain Nielsen's Top Ten mistakes for web design. Briefly state your opinion of each of these.

**(10 marks)**

- (b) *"The power of the Web is in its universality. Access by everyone regardless of disability is an essential aspect."*

Discuss this statement by Tim Berners Lee with reference to recent developments in the *Web Accessibility Initiative*, including the *Web Content Accessibility Guidelines*.

Focus on the reasons for their importance and the recommendations made to web developers.

**(15 marks)**

5. (a) Give the code required to create the HTML form shown below. This form should be used to send an e-mail of the contents to [admin@exams.com](mailto:admin@exams.com). Be sure to set all attributes to reflect this.

**(8 marks)**

Name	<input type="text"/>
Age	<input type="list" value="Under 25"/> Under 25 25 - 34 35 - 44 45 - 35 Over 55
Gender	Male <input type="radio"/> Female <input type="radio"/>
Address	<input type="text"/>
<input type="button" value="Send"/> <input type="button" value="Clear"/>	

- (b) Using examples, describe the HTTP request and response headers. Explain the function of each component of the header.

**(6 marks)**

- (c) If the values in the form in part (a) above had been set as shown in the diagram below, describe how that data would have been carried in
- (i) A HTTP GET header
  - (ii) A HTTP POST header

**(4 marks)**

Name	Brian Kerr
Age	<ul style="list-style-type: none"> <li>Under 25</li> <li>25 - 34</li> <li style="background-color: #e0e0e0;">35 - 44</li> <li>45 - 35</li> <li>Over 55</li> </ul>
Gender	Male <input checked="" type="radio"/> Female <input type="radio"/>
Address	Dalymount Park, Phibsborough, Dublin

- (d) Explain what is meant by *cookies* in the context of web development.

**(3 marks)**

- (e) Using sample code, show how the contents of the above form could have been written to a cookie using JavaScript and later retrieved by another page.

**(4 marks)**

6. (a) Explain what is meant by the term protocol, and explain why protocols are important in a distributed system.

**(3 marks)**

- (b) Explain in detail the relationship between *HTTP*, *TCP* and *IP* in downloading a page from the World-Wide-Web.

Clearly identify the role each plays in the Internet/Web architecture.

**(11 marks)**

- (c) “Future web documents may not all be written in HTML”.  
Using an example application and show how DTD, XML and XSL will replace HTML.

Use sample code and sketches of output in your answer.

**(11 marks)**

