

R266-313

**DUBLIN INSTITUTE OF TECHNOLOGY
KEVIN STREET, DUBLIN 8**

**Diploma in Computer Science
Year 3**

Supplemental Examination 2001

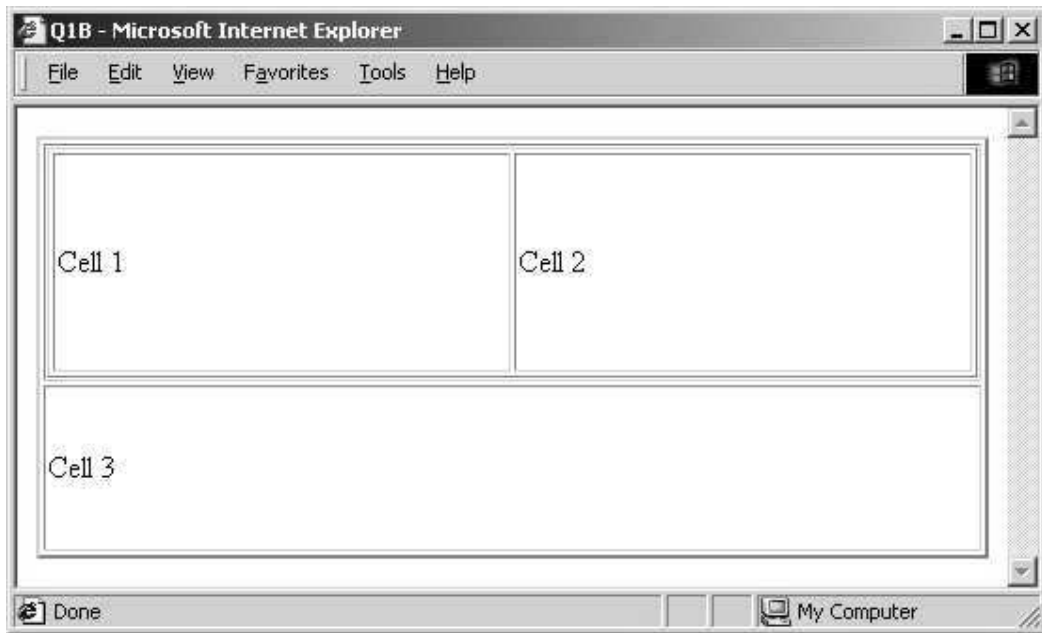
Advanced Web Development

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Attempt any **FOUR** Questions.

All questions carry equal marks.

1. (a) Give an detailed outline of what you understand *Hypertext*, *HTML* and *Cascading StyleSheets* to be. You may use code examples where you deem it necessary. **(5 marks)**
- (b) The diagram below shows a set of tables constructed using HTML. Give the HTML code used to construct them.



(8 marks)

- (c) What is the Document Object Model? Outline clearly and in detail what it can be used for. **(6 marks)**
- (d) Construct a DOM tree for the HTML code you assembled for part (b) above. **(6 marks)**
2. (a) Explain the terms *internet host*, *IP address*, *client*, *server*, *client-server architecture*, *DNS*, *web browser*, *HTTP*, *URL*, *web server*. **(10 marks)**
- (b) With the aid of diagrams explain clearly and in detail exactly what happens when someone attempts to download a resource over the World Wide Web. In your answer you should make use of **all** the terms you defined in part (a) above. **(15 marks)**

3. (a) Explain what is meant by the terms *Client Side Scripting Language*, *JavaScript*, *VBScript*. You may give example uses or code fragments to help illustrate your answer. **(6 marks)**

- (b) Below is the code for an HTML form which allows a user to enter a user name and password. Change the code below and create a JavaScript function in order to ensure that the form will not be submitted unless the user has (a) filled in both fields and (b) the password is at least six characters in length. In the event of the form not being filled in correctly the user should be informed of the specific reason why it was not submitted.

```
<html>
  <head>
    <title>
      Q3B
    </title>
  </head>
  <body>
    <form method=POST action="/servlets/Test">
      Name:<input type=text name=user_name>
      Pass:<input type=password name=pwd>
      <input type=submit value=Submit>
    </form>
  </body>
</html>
```

(11 marks)

- (c) “Scripting can also be used on the server side.” Discuss this statement by clearly outlining the different uses for scripting on the server side as opposed to the client side. Give examples of two different server side scripting technologies and compare and contrast the two.

(8 marks)

4. (a) What is a Java Servlet? What is a Java Server Page (JSP)? Explain in detail the relationship between the two. **(6 marks)**

- (b) What is HTTP? What are the components of an HTTP request header? Explain each component individually. **(6 marks)**

- (c) A Java Servlet may have a `doGet (...)` method and a `doPost (...)` method. What are the two parameters that these methods take? Give a **detailed** discussion of why it is necessary to have both. Explain clearly their relationship to the HTTP protocol and HTML forms. You may wish to present an example scenario where both methods are used.

(13 marks)

5. (a) Discuss using examples what is meant by the term *e-commerce*.
(5 marks)
- (b) Justify the need for cryptography in e-commerce. Discuss in detail the two primary forms of cryptography; *symmetric cryptography* and *asymmetric cryptography*. Compare and contrast the two forms of cryptography.
(10 marks)
- (c) “**SET** and **SSL** are two means used to perform secure transactions electronically.”
Clearly outline the process involved in securing transactions over the web using each of these methods.
(10 marks)
6. (a) “Databases can be accessed from Java Servlets using JDBC.”
Why is database access of such importance in a three tier architecture? What technology attempts to greatly simplify database access, and how is this done?
(6 marks)
- (b) Discuss what you understand XML to be.
(7 marks)
- (c) WML is an application of XML. Explain what WML is and refer in particular to the *deck/card* metaphor.
(6 marks)
- (d) Give a brief account of WAP.
(6 marks)